

# THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metals

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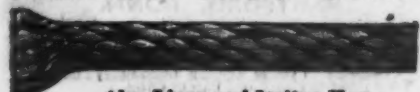
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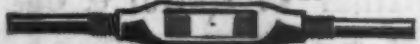
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# THE IRON AGE

New York, Thursday, August 17, 1905.

## Heavy German Shears and Presses.

BY FRANK C. PERKINS.

While most modern iron and steel plants use electric power more than any other form, there are certain large machines which are better operated by hydraulic and steam power. Examples of these are heavy shears and presses, of which a number, built by Breuer, Schumacher & Co. at their Kalk works, near Cologne, are reproduced herewith. The necessary water pressure is sometimes provided by electrically driven hydraulic pumps and in other cases by steam power.

The double steam hydraulic plate shear shown in Fig. 1, with steam driving gear and automatic valve gear, has two gapped hollow standards, held together above and below by box girders with stiffening pieces. The lower

shears or steam hydraulic shears. The latter type, it is stated, is likely to break when a block too cold or too thick is put in by mistake, and there is a large consumption of steam, because the steam engine must run during the forward stroke of the knife as well as on the backward stroke, and must make the same number of revolutions whether the material to be cut is thick or thin. It is also held that the shears for blocks of large section, as now used, are too expensive. With the design illustrated in Fig. 2 breakage is impossible because, fly wheels being avoided, the maximum pressure cannot be exceeded. If by mistake a bloom too cold or exceeding the maximum section should get into the machine the shears will simply stop without any damage being done, and reversing the motion of the machine frees the bloom. The consumption of steam is greatly reduced, as it is only required on the forward stroke, the weight of the big steam

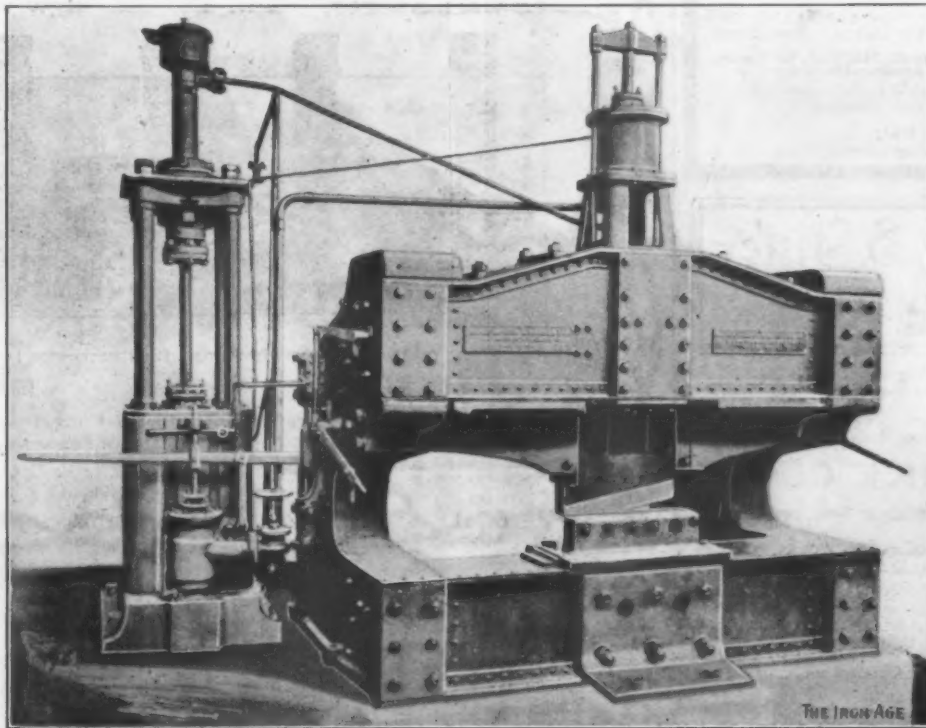


Fig. 1.—Double Steam Hydraulic Plate Shear, Built by Breuer, Schumacher & Co., Kalk, Germany.

blade is bolted to the under girder, while the upper girder carries the pressure cylinder and the guide for the upper blade holder. A steam cylinder on the upper girder lifts the upper blade after each stroke. The steam driving gear comprises a vertical cylinder on which are four steel columns carrying the hydraulic pressure cylinder. The steam piston rod is continued as the hydraulic ram. A valve is provided through which any loss of water in the hydraulic cylinder can be replaced. The valve gear is manipulated by hand, which starts the steam piston, forcing the ram into the hydraulic cylinder and causing the shear to descend. At the side of the driving gear is a preliminary steam valve gear, with an oil cataract so arranged that the gear acts automatically. It can also be arranged so that the cutting stroke is started by hand while the return stroke is automatic, the blade remaining in its highest position until the next stroke. This machine has a gap of 1020 mm. (40 3-16 inches) and a weight of 52,000 kg. (114,500 pounds). The thickness of plate cut is 37 mm. (1 7-16 inches) and the width 2000 mm. (78 3/4 inches).

The horizontal steam hydraulic shear shown in Fig. 2 is said to avoid the disadvantages of the usual eccentric

piston causing the return, and is proportional to the section of the material to be cut—i. e., to the required length of stroke. For thin material the stroke is adjusted by a special mechanism and the amount of water is accordingly regulated. The stroke of the large steam piston will always be proportional to the stroke of the shearing blade multiplied by the hydraulic pressure.

The steam hydraulic driving apparatus consists of a single acting steam cylinder, solidly fixed to the base frame, with piston and piston rod and a hydraulic cylinder of mild forged steel, which is mounted in a cross head connected to the steam cylinder by four mild steel columns. Steam admitted to the large driving cylinder forces the water into the small hydraulic cylinder and then into the large hydraulic cylinder of the shearing machine. The distribution is then regulated by a piston valve. The return stroke takes place automatically and the piston comes to the bottom of the steam cylinder without shock.

Behind the machine is a small steam cylinder under permanent steam pressure. As the shearing blade moves forward the steam in this cylinder is pressed into the tubing, forming an elastic cushion when the blade has

penetrated the steel. To avoid shock and insure quiet equal movement of the machine the hydraulic power is cut off as the work is almost cut through. After the stroke the shearing blade is brought back with accelerated speed by this small cylinder. The machines work continuously with a constant amount of liquid. There is no objection to using oil or glycerine instead of water in places where the latter would freeze. The machine weighs 125,000 kg. (275,000 pounds) and cuts blocks up to 400 mm. (15½ inches) thick.

Fig. 3 shows an electro-hydraulic shear for symmetrical sections of all kinds. These shears are of special service in rolling mills and structural iron works, as they do away with hand cutting, which saves time, and cut straight and square so that no subsequent trimming is necessary. This last is due to the peculiar form of the blades. The upper blade first punches a hole in the web of the section, through an offset, then the slanting blades cut through the web and finally the flanges on both sides,



Fig. 2.—German Steam Hydraulic Shear of Horizontal Construction.

leaving the whole cut perfectly smooth. The die contains two movable side pieces manipulated by a screw, which hold the section as in a vise, and two changeable center pieces, which must be adjusted for each different section. For most sections the same upper blade answers and it takes less than a minute to change the lower ones. As the upper blade passes between the lower ones a straight cut is insured. The section is cut at one stroke without having to be turned over. The shears work rapidly and noiselessly. The pump may be driven by hand or belt, instead of by motor, and where portability is desirable the shears may be mounted on trucks.

A strong double frame of cast iron contains the cast steel hydraulic cylinders. The leather packed ram, carrying the upper blade holder, is guided in the upper frame and also just over the work to take the side pressure and prevent the upper blade moving out of line. The fixed lower blades and the moving side blades, adjusted by screws and gears, are placed directly between the two halves of the frame. The upper blade is lifted after each stroke by a small return stroke cylinder, placed above the working cylinder. The hydraulic pump is

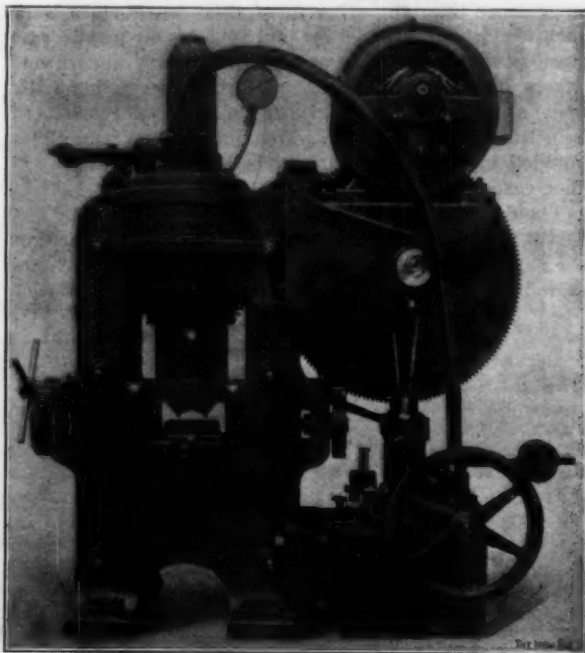
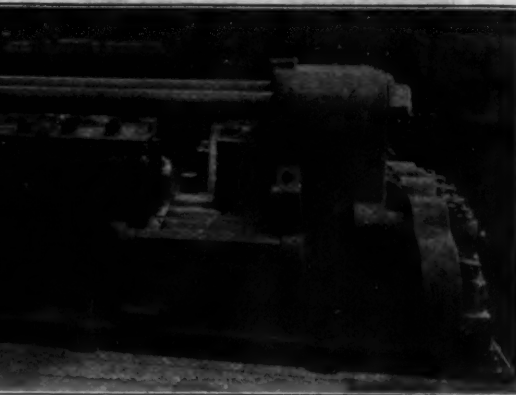


Fig. 3.—Hydraulic Shear with Electrically Driven Pump.

double acting and is mounted at the side of the shears. Up to a certain pressure both plungers operate; one of the suction valves is then automatically switched out and the highest pressure is attained with one plunger.

Fig. 4 shows a vertical steam hydraulic block shear, also said to avoid the disadvantages common to shears with eccentrics or gearing. The machine consists of two parts, the shear and the steam intensifier. The upper



cross piece is fastened with four mammoth steel bolts upon the standards of the base. The upper knife slide is adjustably guided between the standards and is bolted to the cast steel hydraulic pressure cylinder. On the upper knife slide there is also bolted the small cylinder of the hold-down, which is connected with the main hydraulic cylinder by a pipe. The movement of the hold-down piston rod is limited by the under edge of the movable knife. As soon the hydraulic pressure cylinder receives pressure it moves down with the upper knife slide, and the hold-down presses upon the block and keeps it fast while it is cut off. The cylinder of the hold-down

slides down over its piston, increasing the pressure, which avoids a rapid movement of the knife at the moment it cuts through. Upon the cross piece is mounted a steam

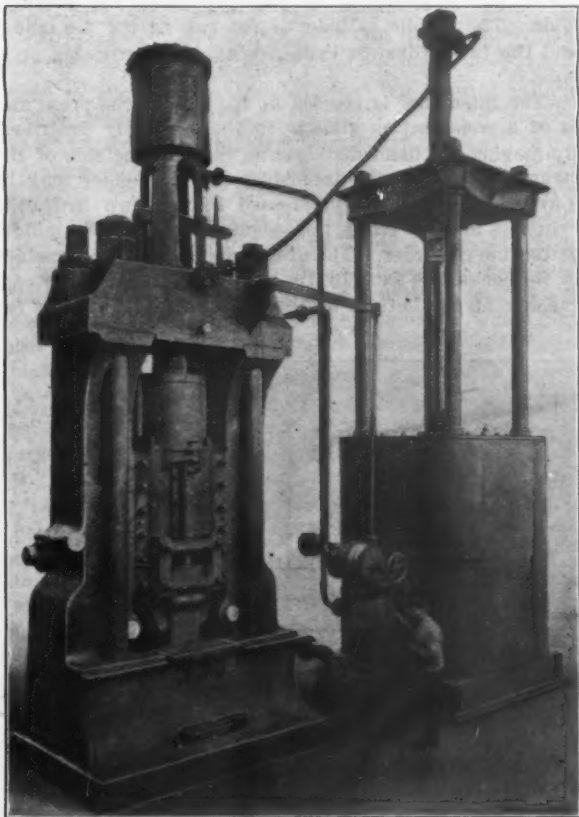


Fig. 4.—Vertical Steam Hydraulic Block Shear.

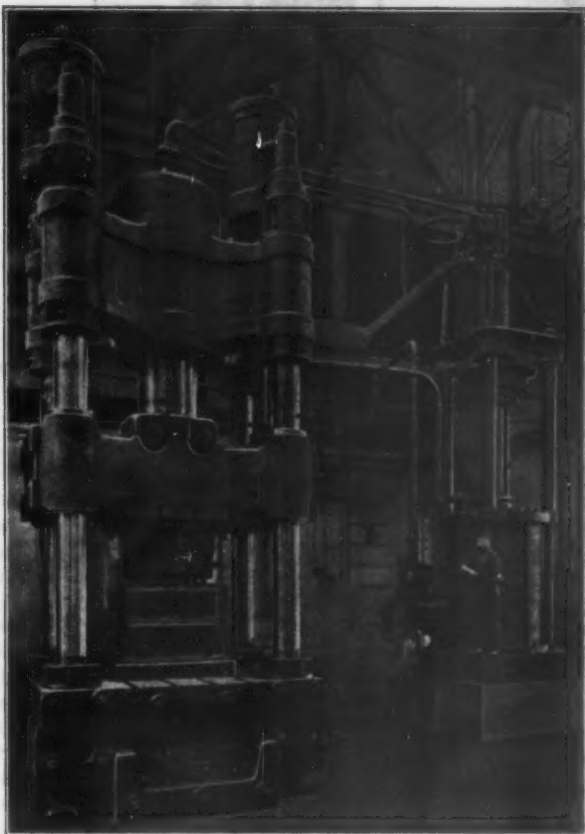


Fig. 5.—Steam Hydraulic Forging Press Capable of 3000 Tons Pressure.

cylinder, taking steam from below, having its piston rod connected with the upper slide by a cross piece and two rods, so that as soon as the hydraulic pressure is cut off the upper knife is raised.

The steam intensifier standing at the right of the

shear consists of a steam cylinder mounted on a sole plate and supporting on four forged steel columns a casting containing the hydraulic pressure cylinder. The plunger of the latter is the piston rod of the steam cylinder. A water reservoir with valve to admit make up water is fastened upon the pressure cylinder. The machine weighs 230,000 pounds and cuts blocks up to 16 inches square.

These vertical block shears are also built with a rocking table, which is lowered at one end by the cutting down knife, and, after the cut is made, raised by a counterweight to its normal position. The rocking table is situated above a pit and swings with its axis in a fast bracket. The table itself consists of two arms, in which are supported all the brass bearings of the rolls and gear shafts, which are driven by gears from the bracket wheel.

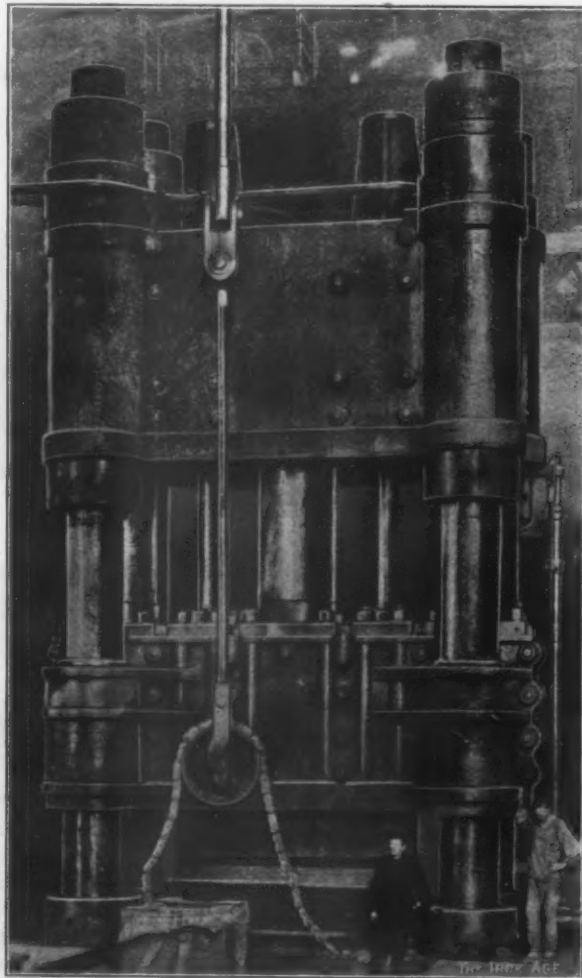


Fig. 6.—Steam Hydraulic Armor Plate Forging Press with a Pressing Capacity of 12,000 tons.

For heavy forging work electricity and steam are only used as auxiliary power, usually for driving pumps and intensifiers, the main work of the forging presses being done by hydraulic power.

The steam hydraulic forging press with steam driving gear, illustrated in Fig. 5, has a foundation frame connected with the steel casting containing the hydraulic cylinder by four wrought steel columns. The two return stroke steam cylinders are mounted above the hydraulic cylinder. The steam driving gear and intensifier is placed near the press. To its hydraulic cylinder a valve box is attached, connected on one side with the water tank and on the other with the hydraulic cylinder of the press and also with the steam valve lever. In starting the lever is put in its middle position, the upper die descends to the work and the pipes fill with water. Steam is then admitted below the piston and forces the water into the hydraulic cylinder, which acts on the ram connected with the press beam. The strokes can be varied in number and force by the valve gear.

The pressure in the steam cylinder increases as the resistance offered by the work increases. When the limit

of the boiler pressure is reached the press refuses to work and the work must be reheated. Only so much steam is used as is necessary for forging the work. The press exerts exactly the same pressure whether the beam is high up or low down, which is not the case with steam hammers. The hydraulic pressure runs as high as 3000 and 4000 tons.

At the up stroke the valve lever is brought to its highest position, steam enters under the pistons of the return stroke cylinders, the hydraulic valve on the pressure cylinder of the intensifier is opened and the water in the large pressure cylinder of the press is allowed to return to the reservoir and the press ram returns to its first position.

The hydraulic armor plate forging press, shown in Fig. 6, rests on a foundation frame built up of cast steel plates, which carries the lower press beam. This is con-

of the upper casting there is a vertical steam cylinder, the piston rod of which is connected with the movable slide. Symmetrically at the sides of this are two small steam cylinders, the pistons of which are constantly under steam pressure, to counterbalance the movable slide. The middle cylinder is for raising the die holder and the two hydraulic cylinders exert the working pressure.

The intensifier is erected at the side of the press and is of a construction similar to those already described. By moving the hand distributing valve at the side of the steam cylinder of the intensifier the die holder may be lowered upon the work, pressed by the two hydraulic cylinders and raised by the steam cylinder in the middle of the upper girder. The steam piston of the intensifier in the meantime falls by its own weight upon the steam cushion at the bottom of the cylinder and is ready for

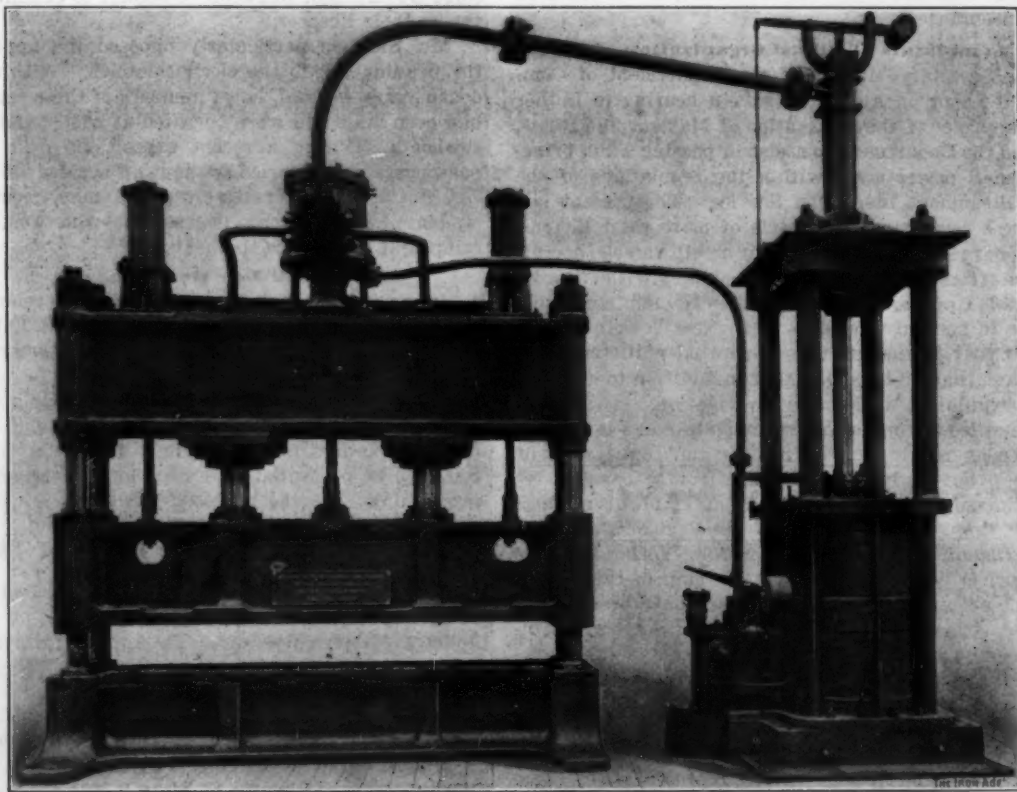


Fig. 7.—German Steam Hydraulic Sleeper Press.

nected by four wrought steel columns with the cast steel cross head, which contains three hydraulic cylinders, the rams of the cylinders being firmly bolted to the upper press beam. A return stroke cylinder is placed in the center of the dome and connected to the upper press beam by rods. Three steam intensifiers are placed at the side of the press. The hydraulic cylinders of the driving gear are so connected together that one, two or all of them can be connected with one, two or all of the hydraulic cylinders on the press. This arrangement gives nine variations, three stages in power, each with three different strokes. For rapid forging a small accumulator with a pressure of about 60 atmospheres is provided and for preliminary and subsequent filling a large accumulator with about four atmospheres pressure. The machine is capable of exerting a pressure of 12,000 tons.

The steam hydraulic sleeper press in Fig. 7 is designed for making railway sleeper sections from rolled plates. It is very powerful and has a capacity of up to 4000 sleepers in ten hours with skilled workmen. The hollow base plate casting is in the form of a table plate and is connected with the upper casting, which is of box form, by four mild steel columns. In this upper girder there are two hydraulic pressure cylinders, the pistons of which connect with the movable slide. The lower face of this slide as well as the face of the table plate is provided with slots for fastening the dies. In the middle

the next stroke. The sleeper press is designed for a hydraulic pressure of from 320 to 600 tons.

The boiler plant of Irons & Russell, Providence, R. I., consisting of two 130-horse power Babcock & Wilcox boilers, is equipped for forced draft, the bridge walls being hollow and built over the air duct. Blast gates are set in the bridge wall and the rods for opening and closing them lead through the boiler fronts. A 70-inch fan, driven by a single cylinder vertical engine, furnished by the B. F. Sturtevant Company, Boston, supplies the air for the forced draft. A Mason damper regulator actuates a valve in the steam pipe to the fan engine, varying the fan speed according to the pressure and in that way serving to maintain a constant boiler pressure of 130 pounds. The main flue damper is left wide open and the hand damper on each boiler is closed to the point where the gases in the furnace will escape and yet allow no cold air to enter when the fire doors are opened. The fuel used is a mixture of three parts of No. 3 buckwheat coal with one part of Pocahontas, which gives an average evaporation of 8.12 pounds of water per pound of mixture fired. The furnaces are equipped with McClave grates. It is stated that no trace of smoke is visible from the stack, which is carried up through the building and is of sufficient proportions to supply natural draft under ordinary conditions.

### Restrictions for Small Power Boats.

WASHINGTON, D. C., August 15, 1905.—The friendly offices of the Department of Commerce and Labor are being solicited by the American Association of Masters and Pilots of Steam Vessels to secure the passage in the coming Congress of a law that will place all launches and other power boats of less than 15 tons under the jurisdiction of the navigation laws, requiring those who operate them to pass examinations and take out licenses as pilots and engineers. The movement is a revival of a campaign that failed last winter and is strongly opposed by all builders of small gasoline and steam engines, electric motors, launches and pleasure boats, &c., and it is very freely intimated that the anxiety of the officials of the American Association of Masters and Pilots of Steam Vessels to secure this legislation is based less upon solicitude for the public welfare than upon the desire to impose such restrictions upon the operation of small pleasure craft as will create several thousand jobs for licensed pilots and engineers.

#### Complaints of Pilots' Organization.

Acting Secretary Murray of the Department of Commerce and Labor on August 11 gave a hearing to Luther B. Dow, manager of the Association of Masters and Pilots, who urged the Department to assist in passing a bill bringing all small power craft within the regulations of the Federal Steamboat Inspection Service. The present law limits these regulations to vessels of more than 15 tons, and it is charged that there are many small vessels operating in the rivers and harbors of the country without properly qualified pilots and engineers, and which constitute a menace to general navigation. In New York harbor it is alleged that ferries are being operated with vessels of slightly less than 15 tons, and that in addition to escaping Federal regulation under the navigation laws they avoid penalties for operating without State and municipal franchises by making no charge for the conveyance of passengers, but derive their income from a small fee charged for admission to the private docks between which the vessels ply. The Collector of the Port of New York and the Commissioner of Police of New York City have been urged to co-operate in putting a stop to this traffic, but in the present state of the law they have been unable to do so. It is understood that Assistant Secretary Murray gave assurances that the Department would recommend to the next Congress the passage of a measure similar to the Grosvenor bill pending before the House Committee on the Merchant Marine and Fisheries, which was defeated as the result of the opposition of builders, manufacturers and others whose representatives were heard by the committee from time to time during the last session.

#### Opposed by Manufacturers.

Among those who opposed the bill in the last Congress were Ernest F. Du Brul, then Commissioner of the National Metal Trades Association; John J. Amory of the Gas Engine & Power Company, New York; H. R. Sutphen of the Electric Launch Company, Bayonne City, N. J., and J. M. Schoonmaker of the C. A. Strelinger Company, Detroit, Mich. Mr. Du Brul declared that there was no demand for the proposed legislation from any interest that was entitled to consideration, while, on the other hand, it would work a great hardship on all owners of small power boats, and in many cases would deprive persons of the opportunity of making a living. The law if passed would also greatly reduce the construction of such craft, in which many concerns have a very large aggregate capital invested. There were thousands of such small boats engaged in carrying freight and passengers on lakes, rivers and other bodies of water where there were no large steamers. The requirement that such vessels should carry pilots and engineers would be prohibitory and would cause great inconvenience. The amendment to the bill suggested by the chairman that its provisions should apply only to those operating small boats for hire was a clear discrimination against the very class entitled to the highest consideration, for it was obvious that the risk of accident was greater on small craft operated exclusively for pleasure, often by women and children, than upon similar boats managed by their owners and doing

a general freight and passenger business. The gasoline launch, Mr. Du Brul said, was a modern development and was far less dangerous than small craft employing steam, and in fact the risks connected therewith were less than those associated with sailboats. During Mr. Du Brul's statement Chairman Grosvenor interjected the assertion that the proposed law was desired only by the United States, that no member of the committee had received a communication "from any organization or engineers' association," &c.

Mr. Amory confirmed Mr. Du Brul's statement and declared that of all the small power boats built by his company not one had met with a serious accident of any kind, although many were operated by women and young boys. To require licensed engineers and pilots for such craft would be absolutely prohibitory, and even if those operating them were competent to pass the required examination it would be a great hardship to compel them to take a long journey annually to the headquarters of some Government inspector to submit to examination and renew their licenses.

Mr. Sutphen particularly opposed the application of the pending bill to the electric launch. Within the past dozen years, he said, large numbers of these small vessels had been built and were operated as easily and simply as rowboats. During a recent exposition over 1,000,000 passengers were carried without an accident of any kind. The boats were operated by young men, mostly college students, who had no license but who were perfectly competent to manage the boats.

#### Bill May Be Amended.

It is probable that Representative Grosvenor will confer with the Secretary of Commerce and Labor before reintroducing the bill pending in the last Congress, and it is possible that some minor changes may be made in its terms, but it is understood that it will provide specifically for licensing pilots and engineers for all small craft that may be operated for hire at any time, although one person may be permitted to act as both pilot and engineer, provided he has the necessary licenses. W. L. C.

### Reinforced Concrete Railroad Ties.

An interesting use of cement is a method of manufacturing railroad ties recently introduced on the Elgin, Joliet & Eastern Railway. These ties are manufactured under a design originated by R. B. Campbell, general manager of the company, Joliet, Ill.

The tie is 8 feet 6 inches long and 6 x 7 inches in section, with beveled edges, except under the rails, where it widens to 10 inches for a distance of 8½ inches on either side of the center of the rail. The corners of this widened portion are also beveled to meet the body of the tie. Reinforcement is furnished by 2-inch wrought iron pipe, scrap boiler tubes being utilized for the purpose. Two 7-foot lengths of these tubes are used for each tie, placed side by side. The tubes are surrounded, sides and ends, by a single thickness of poultry netting. On the center line of the tie below each rail, and parallel thereto, is a 6 x 8 inch plate of heavy wire netting inserted through specially punched openings in the pipes. The rail is held to the tie by beveled clip washers and a single U-bolt placed obliquely to the longitudinal center line. A metal plate is imbedded in the tie under the rail.

Very satisfactory tests were made with a number of these ties on a testing machine and 140 were placed in use, which have been in service from 9 to 13 months. Of these ties 19 failed in service, but investigation showed that the defects were caused through imperfect mixture, there having been considerable loam mixed with the sand in making the concrete. The results, however, were regarded as sufficiently satisfactory to warrant the manufacture of 1000 more of the ties, which are to be placed in the track of the Chicago, Lake Shore & Eastern Railroad where the traffic is very heavy. Mr. Campbell states that the ties can be manufactured and sold at a cost of \$1.50 to \$1.75 each.

The Westinghouse Machine Company, East Pittsburgh, Pa., has received an order from the Carnegie Steel Company for gas blowing engines to be installed at the Edgar Thomson Furnaces.

## The Brooks Centrifugal Pump.

The Brooks centrifugal pump is one that is stated to attain an exceptionally high efficiency. It is hard to believe that a centrifugal pump is capable of producing a vacuum on the suction of 28.75 inches, but this is claimed to have been obtained when the barometer stood at 29.56. All stock pumps are guaranteed to create a vacuum of within at least  $1\frac{1}{4}$  inches of the barometer reading and any of the single stage pumps are good for any pressure up to 60 pounds per square inch. On November 30, 1904, a test was made in the presence of a number of prominent engineers at the St. Louis Exposition in which a Brooks 2-inch single-stage pump worked successfully on an actual suction of 30 feet and against a pressure of 25 pounds (equivalent to about 57.6 feet). This was a severe test for any pump of the direct type.

A Brooks 4-inch pump having a 5-inch inlet is shown in Fig. 1 direct connected to an electric motor, and Fig. 2 gives an axial section and a transverse section of the same pump.

The volume of water flowing through any centrifugal pump is acted upon continuously by two forces, centrifugal force and atmospheric pressure. Centrifugal force at

a part of a body or column of liquid which as a whole is deflected and that the blade of the impeller has an appreciable thickness, so that no part of the liquid can enter exactly in the axis of the pump. However, the liquid entering close to the axis of the pump will be deflected radially very slowly at first, and with increasing force and abruptness as it departs from the axis and comes into the influence of the more and more rapidly moving parts of the impeller blade. That liquid which enters at the periphery of the inflowing column will come immediately into the influence of a part of the impelling blade traveling at a relatively high speed, since it is comparatively remote from the axis of rotation. This portion of the column will be deflected much more abruptly and will not be long in acquiring a direction of flow substantially perpendicular or at right angles to the axis of the pump.

In Fig. 2 these resultant lines of force (the extreme inner and outer) are indicated by the lines *a* and *b*, which have been plotted from accurate data obtained from numerous tests. It will be seen that these two resultants are divergent and that the inner curve *a* is much flatter, while both are very nearly parabolic, and further that these two extremes intersect with the extreme ends of the outlet slots *c* of the hollow piston.

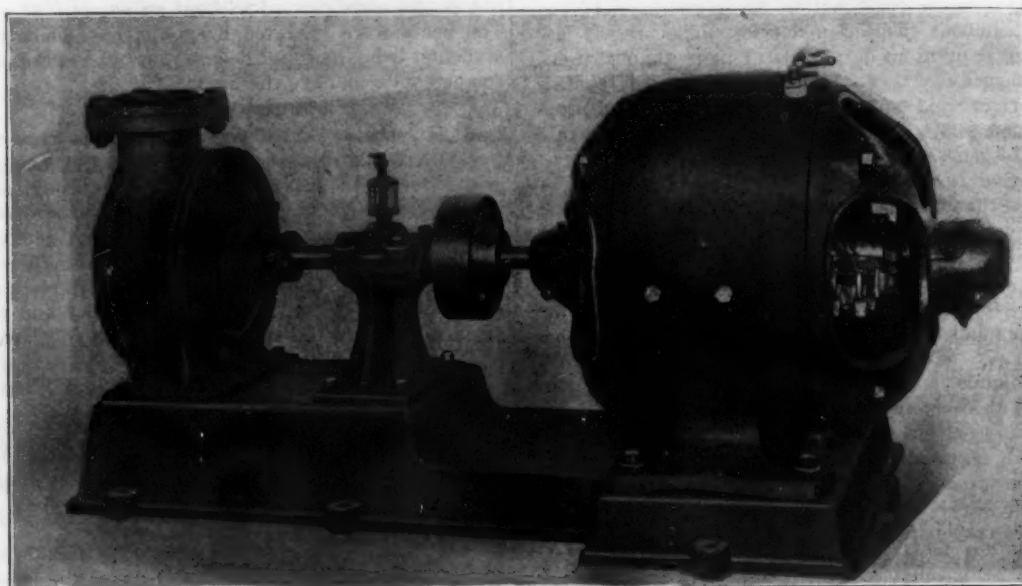


Fig. 1.—A Motor Driven 4-Inch Brooks Centrifugal Pump.

all times acts radially and perpendicularly to the axis of rotation of the impeller. Atmospheric pressure in the case of an axially disposed inlet pump tends to send the liquid in a straight line in the direction in which it enters the pump—i. e., parallel with the axis of the pump. The path which the liquid will actually pursue is dependent upon the centrifugal force and the atmospheric pressure acting upon it and also upon the manner in which it is controlled, guided and deflected by the construction of the passages through the pump. The construction of the pump should be such as to permit the liquid to take that path which it naturally follows under the combined action of centrifugal and atmospheric pressure, modified (if at all) only by considerations of practical construction. In other words, the power consumed in deflecting and guiding the liquid out of its natural course should be a minimum, as such power is consumed in impact and is wasted.

Obviously all parts of the inflowing column of water will not be equally affected by centrifugal force. That part which enters at the exact center of the inlet will pass into the influence of the impelling blade at a point where the latter has practically no movement. Accordingly, practically no centrifugal force is imparted to the column along its axial line, and the liquid might flow on indefinitely in a straight line were it not that it is

The latter is the condition corresponding to the best efficiency, and as the resultant lines of force *a* and *b* also depend upon the speed of rotation, a given design of pump has one certain speed at which it should be operated. Theoretically in the Brooks pump there is no impact of the liquid or artificial guiding of it whatever during its passage through the impeller.

Since it is the purpose of the pump to accelerate the motion of the liquid passing through it, the combined area of outlet from the hollow impeller should be substantially less than the total inlet area, or else the delivery outlets will not be kept filled and the pump will be inefficient both because the impeller outlets are defectively sealed and because there would be more or less churning or eddying of the liquid. If the column of liquid entering a Brooks pump be considered as two columns, since it is divided into two by the vane or blade of the impeller, the cross section of each of these columns will be of increasing diameter in one direction, but of decreasing diameter in the other direction.

Fig. 3 is an axial section of a Brooks pump having the same sized inlet and outlet as the one in Fig. 2 and the same construction except that the diameters of the impeller and surrounding case have been increased. If this pump is operated at the same peripheral speed as the first pump its rotary speed will be much slower, and the

resultant lines of force,  $a'$  and  $b'$ , will be flatter curves, because the centrifugal force will be less in proportion to the atmospheric pressure. The lines  $a$  and  $b$ , Fig. 2, have been superimposed on Fig. 3 to show this change. The line  $a'$  intersects the end wall of the pump and its continuation lies far outside of the pump chamber. The outer line  $b'$  intersects the delivery opening or slot of the impeller toward the receiving side of the pump. This pump would be very inefficient as compared with the pump in Fig. 2 if driven at the same peripheral speed, because much of the liquid would impact against the end wall of the impeller and would not only waste force but

compared to that of the inlet, it usually being greater, whereas it should be less.

Another feature which contributes to the efficiency and the unusual lifting power of the Brooks pump is the lip which overhangs each of the two outlets of the impeller, as shown in the end view, Fig. 2. These lips are directed tangentially and rearwardly. They perform two functions: serving as guards or division plates, which keep the outflowing columns of liquid from impinging directly against the annular body of liquid between the casing and the impeller, thus minimizing eddying, and to some extent impelling the liquid onward toward the cas-

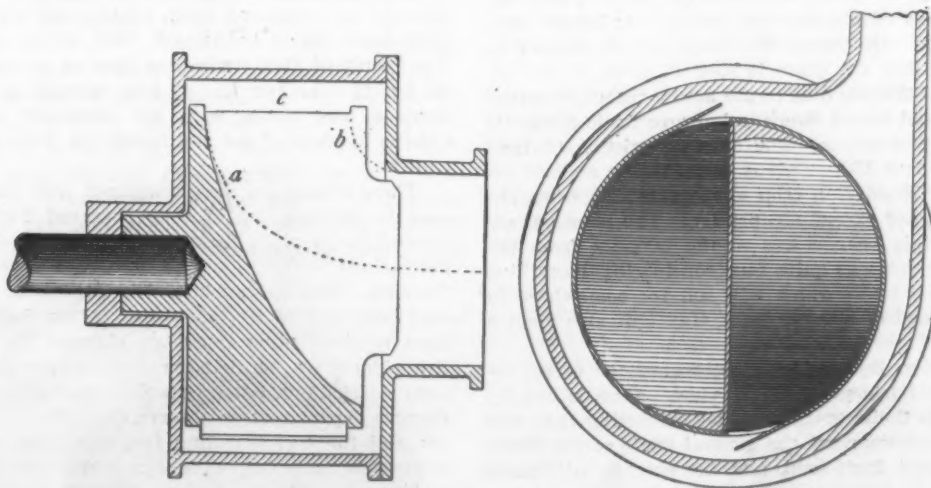


Fig. 2—Longitudinal and Transverse Sections of a Brooks Centrifugal Pump.

in being deflected back would create eddies and flowing friction in its passage to the outlets. An analogous condition is claimed by the builders of this pump to exist in the centrifugal pumps previously built and constitutes

ing outlet. Throughout nearly the entire circumference of the annular space between the casing and the impeller the liquid is flowing with the periphery of the impeller. Clearly the minimizing of eddying or disturbance of this flow will add to the efficiency of the pump and this the lips effect by confining the disturbance due to the outflow to the space immediately next to and surrounding the impeller. In the rapid rotation of the impeller the lips tend to create a vacuum behind them, which produces an effective drag on the liquid just delivered, pulling it along in the direction of general flow.

The Dayton Hydraulic Machinery Company, Dayton, Ohio, manufacturer of this pump, has opened a New York office at 133 Liberty street, where it is the intention to have one of these pumps in actual operation in connection with weir tank and gauges for the purpose of making tests.

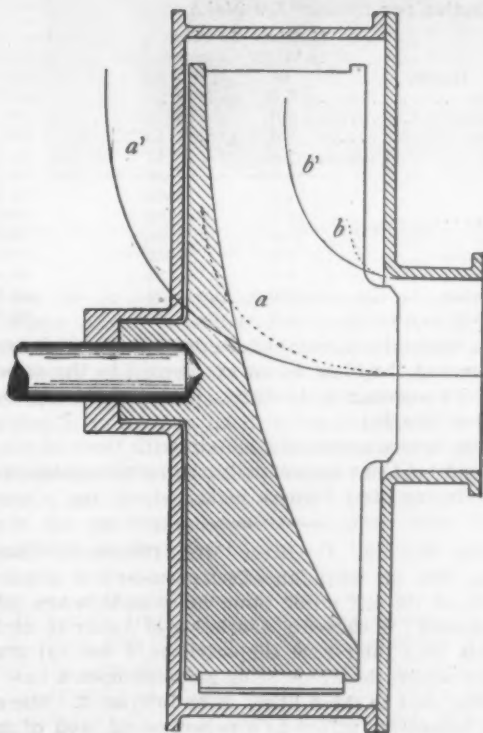


Fig. 3.—Section of a Brooks Pump Incorrectly Designed.

their most serious defect. The liquid, instead of flowing through the pump along the natural lines, is abruptly deflected at right angles to the direction of entrance, and the impact necessarily creates eddies. Another imperfection in many existing pumps is stated to be their incorrect design with respect to the area of the outlet as

**Reeves & Co. as Automobile Builders.**—Reeves & Co., Columbus, Ind., are adding automobiles to their line of manufactures. It is not new to them, as the firm was really one of the pioneers in the horseless carriage industry. It had an automobile running in the capital city of the State as early as 1897 carrying passengers to and from the parks. The motive power was a gasoline engine and the speed was 12 to 15 miles an hour. The company at that time built five machines, one of which was a 19-passenger car, designed to be operated as a stage coach in South Dakota, and it attracted considerable attention in the West. The firm's main product then was the wood split pulley, and its business in this line was so heavy that it dropped the manufacture of complete automobiles, though continuing to produce the engines. About a year ago Reeves & Co. began experimenting with a four-cylinder air-cooled motor, which they have perfected and incorporated into an automobile. Two sizes of these motors are manufactured—namely, 12 and 20 horse-power. The smaller machine has a speed of 30 miles an hour on ordinary roads with a load of 650 pounds; the larger may be speeded to 50 miles an hour. The firm's pulley and variable speed transmission departments in the meantime are busy, and its products are being shipped to all the States of the Union and to foreign countries.

### Pacific Coast Trade Prospects.

SAN FRANCISCO, CAL., August 5, 1905.—The one discouraging feature of the general trade outlook is the undoubted shortness in the cereal crops this year. For a long time it was estimated by the leading members of the Producers' Exchange of this city that the wheat crop would at least reach 600,000 tons, with a possibility of coming up to 700,000 tons, but the result of harvest operations has been to dissipate this hope, as the outside figures that can be depended upon to-day do not exceed 500,000 tons, and out of this must come the whole consumption, which is steadily growing larger, and that needed for seed for the farmers to plant, whatever the outlook may be. It is evident now that there will not be over 150,000 tons left for export. Of course the result to the farmer is the same whether the grain is sold at home or abroad, but the drop of 200,000 tons in the actual return is rather discouraging and is not likely to improve trade prospects in the country districts. The average price for wheat this year is about \$30. This is equal to the amount received from a 750,000-ton crop some years ago, when the price here did not exceed \$20 per ton. The principal encouragement this year comes to the farmers from the barley crop, which was quite fair, considering everything—about 600,000 tons—which will sell for somewhere in the neighborhood of \$22 per ton. Hay will also yield a good return.

Business men lay particular stress on the cereal returns from a business point of view. Cereals employ more people in their production and marketing than any other line which supports the general trade of the State. We have a good fruit crop, and the returns will much exceed what we get from cereals, but it employs fewer people, makes less business, and the best part of the price raised goes into the pockets of the railroad and the dealer. Therefore people in the country, agriculturists and storekeepers alike, are disappointed when the cereal crop does not turn out well. Notwithstanding the light wheat crop it is likely that as much land will be seeded for wheat and barley as ever if the fall outlook for rain should be good. It is to this that the dealers in agricultural implements look forward, and the manufacturers too, for with a short harvest and a doubtful outlook sales are likely to be light and business disappointing.

Notwithstanding the indications afforded by the condition of the cereal crops, the Clearing House figures point precisely in the opposite direction and were never more reassuring than they are to-day. One week after another continues to show greater and greater gains over 1904, as the figures of the latter year did over those of 1903. For instance, the clearings of the week just now closed were \$37,382,602, which is more than \$8,000,000, or over 26 per cent., more than those of the corresponding week in 1904. This has to be partly explained by the heavy sales of real estate, partly by the investments of Eastern and foreign capitalists in mining and lumber and partly by the larger sales of merchandise contingent on the fast increasing population of the State. The sales of realty in city and country are principally to people who have bought to improve, and the extent of the improvements, present and prospective, is enormous. The outlook for the fall trade, now about to begin, is for this reason very good indeed and all our hardware houses have made preparations to meet it. The development of the lumber business is also great this year, and that takes no end of machinery and supplies of every description.

J. O. L.

The Niagara, Lockport & Ontario Power Company has passed into the hands of a syndicate headed by John J. Albright of Buffalo and H. H. Westinghouse of Pittsburgh, the latter succeeding Cassius M. Wicker as a director. The Iroquois Construction Company has been the holding company for the enterprise, and of this company Gen. Francis V. Greene has been elected president; F. B. H. Paine, vice-president and chief engineer; Robert C. Broad, secretary, and Clifford Hubbell, treasurer. It is understood that the offices of the company are to be moved from New York to Buffalo. The Niagara, Lockport & Ontario Power Company is building a transmission

line from the international boundary line of the Niagara River, at a point below the whirlpool, eastward to Lockport and other places in western New York, and will transmit power developed on the Canadian side to various cities and villages along its line.

### Moisture and Furnace Results.

At the Liège Metallurgical Congress M. Divary of Schneider & Co., Creusot, France, gave some interesting information on the occasion of the discussion of Mr. Gayley's dry air process. The observation was made for many years at Creusot that consumption of coke increased and the output of the furnace decreased in summer as compared with winter, and in 1901 records were kept, which in August, 1902, led to a first study. The result of this study was that an economy of 50 to 60 kg. of coke per ton of iron seemed in sight if the furnace was blown with air saturated at 0 degrees Celsius in place of hot and humid air during the summer months.

These researches were continued, and since the difference in consumption of coke observed during one year seemed larger than those justified by calculation it was determined to carry out the system of drying the air by freezing. This was submitted in September, 1903, to several designers of ice machines. After their figures had been received other questions claimed the attention of Schneider & Co., so that the programme was not immediately carried out, but instructions were given to the blast furnace department to observe daily the humidity in the air and the corresponding fuel consumption under conditions guaranteeing accuracy. Three times per day the moisture was observed in the blowing room.

During the year 1904 the charge remained practically the same, the two furnaces, Nos. 2 and 4, running on basic Bessemer pig. The results are shown in the following table, the first column showing the average amount of moisture per cubic meter of air blown in during the month, the second column the increase in the consumption of coke as compared with that of the driest month, and the third column showing the average production per furnace for 24 hours:

Month.	Moisture in blast.		Increase in coke consumption.		Average furnace product.
	Gr.	Kg.			Tons.
January .....	6.3	0			90.5
February .....	6.6	10			88.7
March .....	7.6	13			87.2
April .....	7.8	47			81.2
May .....	10.0	56			78.3
June .....	11.7	103			75.7
July .....	13.0	133			70.0
August .....	12.0	90			76.6
September .....	9.3	55			90.0
October .....	8.0	28			86.0
November .....	7.6	25			86.5
December .....	7.0	35			88.5

At Creusot the speed of the engines is not lowered in winter and the blast is always heated to the same temperature summer and winter, being an average of 752 degrees Celsius.

The figures agree very closely with those of Mr. Gayley and hold out undoubtedly the results to be obtained from drying blast furnace blast.

The William J. Oliver Mfg. Company, Knoxville, Tenn., has hit upon an effective means of placing the merits of its self oiling mine car wheels before possible purchasers. A souvenir, consisting of a pair of miniature wheels with their axle supported on a vertical trunnion at the center, the whole being mounted upon a base plate, is being sent to those likely to be interested. The article is of immediate utility as a paper weight, and when used as such is in convenient access for careful study during the possessor's leisure moments. The whole device weighs about ½ pound, the base plate being 5½ inches in diameter and the wheels 2½ inches in diameter and of a gauge of about 5 inches. Raised letters on the standard call attention to the specialties which the company manufactures, including mine and contractors' cars, coal mine machinery and supplies. It is very probable that the unique little souvenir will prove an efficient salesman.

### The Sterling Power Hack Saw.

A new feature of the Sterling power hack saw recently brought out by the Diamond Saw & Stamping Works, Buffalo, N. Y., is the interposition of a train of reducing gears between the driving pulley and the crank shaft. By this means the pulley is allowed to run at a greater speed than in a direct driven machine, so that a narrower belt can be used and still have ample driving power. To avoid the complications and difficulties frequently experienced with a clutch the machine is driven by the older method of tight and loose pulleys. The arrangement is such that after the work has been completely cut through the next return stroke of the saw automatically throws the belt from the tight to the loose pulley. The device has the advantage of greatly reducing the liability of breaking saw blades.

The saw is fed in the usual way by its own weight, with the provision of means for adjusting which tends to avoid the buckling or breaking of the saw blade and



The Sterling Power Hack Saw, Made by the Diamond Saw & Stamping Works, Buffalo, N. Y.

adapts the saw to cutting of different materials between the extremes of soft steel and tool steel. The machine is made with all parts interchangeable, so that new parts may be readily substituted for ones that have been broken or worn out, making the machine easy to keep in repair.

The design of the machine as a whole is commendable for the effective distribution of metal to provide the greatest strength for the least weight. To obviate any likelihood of the shafts getting out of alignment or working loose the bearings of the driving shaft and crank shaft are cast on the bed.

**Battle Creek Iron Works Reorganization.**—C. T. Allen, secretary and treasurer of the Union Steam Pump Company and president of the City Bank, Battle Creek, Mich., has secured an option on the plant of the defunct Battle Creek Iron Works, to expire September 1, with the stipulation that if he makes satisfactory arrangements for the payment of mortgage and accrued interest the bondholders will withdraw foreclosure proceedings which had already been instituted. Stock to the amount of \$100,000, represented by the land, shops and equipment, will be issued. Sylvester Greusel, who conducts a machinery and supply business at Battle Creek and Hastings, Mich., is secretary and trustee for the stockholders.

### The Jacksonville Exposition.

Owing to a general desire on the part of many prospective exhibitors for more time in which to arrange for their displays it has been decided to postpone the Manufacturers' Pure Food and Industrial Exposition which was to be held at Jacksonville, Fla., in November to January 4 to 18, 1906. The citizens of Jacksonville purpose making this affair the greatest of its kind ever held in the South. While the primary purpose was to exploit the products of Florida, the desire on the part of manufacturers throughout the country to be represented has caused the Exposition to be widened into a general one.

Every winter thousands of tourists from all parts of the world pass through Jacksonville daily *en route* to their winter homes. While the larger part of these tarry in the Florida metropolis for a day or two to break their journey the merchants of the city believe that if some special attraction was provided these travelers would prolong their stay in the city. Jacksonville is no longer merely a winter resort but a thriving, growing and progressive industrial center, and this Exposition is planned for the purpose of showing to the business world the advantages of the city as a trade center.

The Exposition hall, which will be erected in the new St. John Park, a pleasure resort on the banks of the St. John's River four minutes from the heart of the business district, will have a floor space of 210 x 315 feet. Applications for space have been filed so rapidly since the inception of the Exposition that those having the affair in charge are considering the advisability of constructing an annex in order to accommodate all the exhibitors.

### Ten Years of Electric Reduction at Niagara Falls.

The present month brings the tenth anniversary of the establishment of electro-chemical industries at Niagara Falls. On the developments of the decade the *Electro-Chemical and Metallurgical Industry* comments as follows:

On August 26, 1895, the Niagara Falls works of the Pittsburgh Reduction Company started operation. On October 19 of the same year the current was turned on at the plant of the Carborundum Company. Thus it is now just ten years that electro-chemical activity started at Niagara, and in this short space of time more than a dozen varied electro-chemical industries have grown up and are flourishing within a radius of 2 miles from the Falls. In electric furnaces are made at Niagara artificial graphite, siloxicon, silicon, carborundum, alundum, calcium carbide, phosphorus and various ferro alloys. By electrolysis of fused electrolytes are made aluminum, sodium (for the production of various important derivatives), and caustic soda and chlorine. The latter two products are also made by electrolysis of aqueous solutions; while other products of such processes are caustic potash and hydrochloric acid and chlorates. The only example of a process using electric discharge through gases on a commercial scale at Niagara is the production of ozone for the manufacture of vanillin.

As the latest developments we may mention that ground has recently been broken for the caustic soda and chlorine works, which will use the Townsend diaphragm cell, while in the old barn in which Mr. Rossi made his pioneer experiments on ferrotitanium Mr. Ruthenburg's process of agglomerating in the electric furnace magnetic iron concentrates now undergoes an experimental trial. This is certainly a splendid development, and while as a necessary concomitant to the success achieved there have been commercial failures, yet their number is remarkably small. The most notable one is probably that of the Atmospheric Products Company, on the success of which very great hopes had been founded. In the interest of the problem it is greatly to be regretted that no exact information on the causes of the failure has been published. Certainly the problem itself cannot be considered to be dead forever.

The foundations of the success of Niagara Falls as a center of electro-chemical industries are the cheap power and the geographical location. The cost of power is far less than in any steam generated plant; nevertheless, it is not low enough to warrant, for instance, the manufacture of ferrosilicon at Niagara in competition with some European producers. The advantages of the geographical location of Niagara are manifold: Its location on the frontier of the United States and Canada, its easy ac-

### Pilling Air Driven Machinery.

Some new applications of the air engine made by the Pilling Air Engine Company, Detroit, Mich., are shown in the accompanying engravings. Fig. 1 gives a view of a  $2\frac{1}{2} \times 2\frac{1}{2}$  inch engine direct connected to a  $1\frac{1}{2}$ -inch centrifugal pump having a normal capacity of 60 gallons of water per minute. In actual tests the pump has thrown

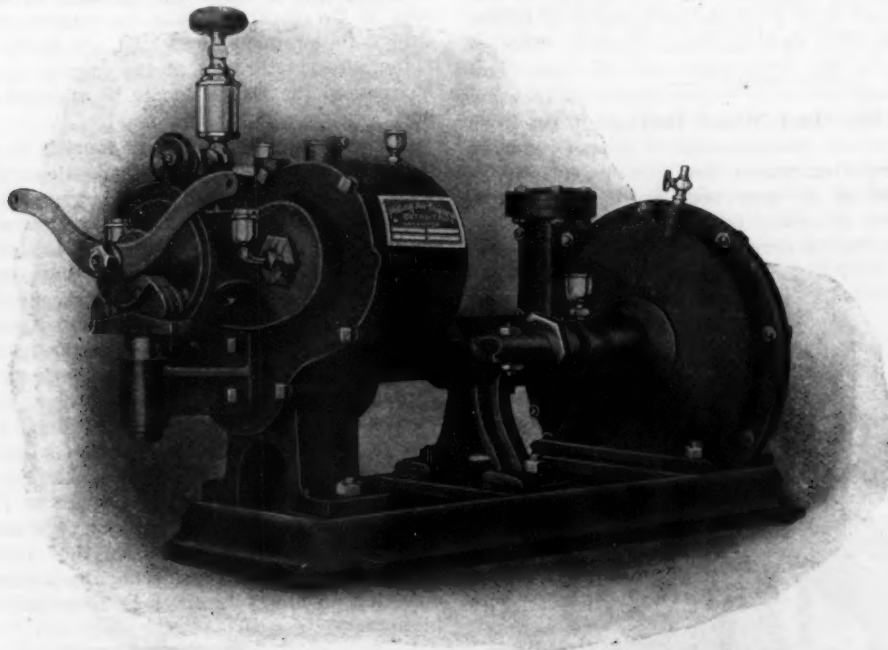


Fig. 1.—A  $2\frac{1}{2} \times 2\frac{1}{2}$  Inch Pilling Air Engine Direct Connected to a  $1\frac{1}{2}$ -Inch Centrifugal Pump.

cessibility by railways as well as by the waterway over the great lakes, with their 3600 miles of shore line and navigable to the very docks at Niagara. But all these natural advantages and resources would not have been exploited without the ingenuity and fostering care of American electro-chemists and engineers, who have

69 gallons in half that time, or 30 seconds. The engine runs in oil and attains a speed of 1800 revolutions per minute when supplied with air at a pressure of 75 pounds per square inch. A set of the type illustrated has been in use for two years in one of the Baltimore & Ohio Railroad Company's roundhouses. The engine and pump are

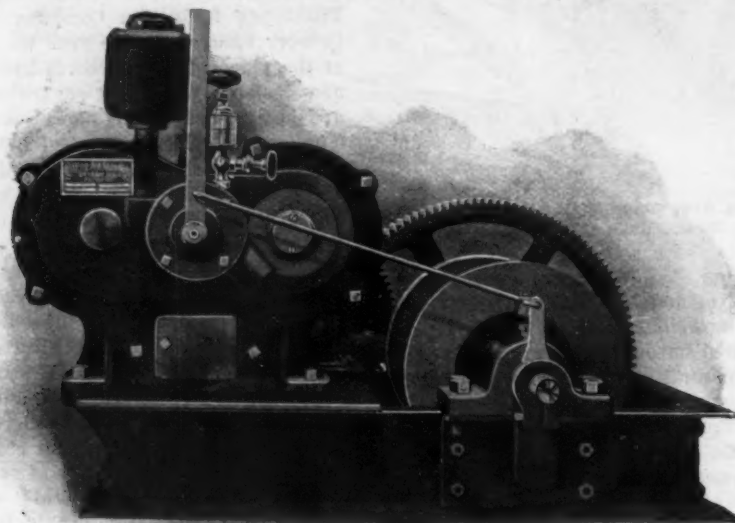


Fig. 2.—A Drum Hoist Gear Driven by a  $2\frac{1}{2} \times 2\frac{1}{2}$  Inch Pilling Air Engine.

proved that good engineers can be good business men. To push forward toward a fixed goal is especially promising in electro-chemistry, and Mr. Acheson's single original experiment on the reaction between carbon and silica led, step by step, to the industries of carborundum, graphite, siloxicon and silicon.

The Wellman-Seaver-Morgan Company, Cleveland, Ohio, has established a branch office at 216 Dooly Block, Salt Lake City, with Harry V. Croll as manager.

located at a distance of 3000 feet from the point where the water is used and are controlled from the latter point.

An engine of the same size is shown in Fig. 2 geared with two reductions to a hoisting drum. The set is one particularly adapted to the elevating of coke and pig iron to cupolas, being used either to haul a car up an incline or lift it vertically. The hoist is also a convenient one for use in building construction for raising beams, timber, mortar, &c. When used to hoist from above instead of

from below the friction of a leading block is avoided. The engine is provided with an automatic stop by means of which the travel is limited at will, the engine being stopped instantly when running either in the hoisting or the lowering direction. The self contained set illustrated weighs about 380 pounds and can be arranged to operate from above or below.

Fig. 3 shows a special piece of apparatus designed for the Niles Tool Works, Hamilton, Ohio, for reciprocating the heavy surfacing saddles and cross rails of large planers. The saddles referred to weigh up to 2000 pounds and through the agency of this device may easily be manipulated by a boy.

### The Steel Wool Duty.

The Treasury Department has completed arrangements for bringing a new test case to determine

praisers will receive all the evidence that the Treasury Department and the importers may care to submit. After the record has been completed the customs tribunal will formulate a decision. Whichever way the board rules an appeal is certain to be made to the United States Circuit Court and probably to the Supreme Court. Until a final settlement is arrived at all importations of steel wool entering this country will pay the higher rates. If the Treasury Department is unsuccessful in the higher courts the Government will be under the necessity of refunding to im-

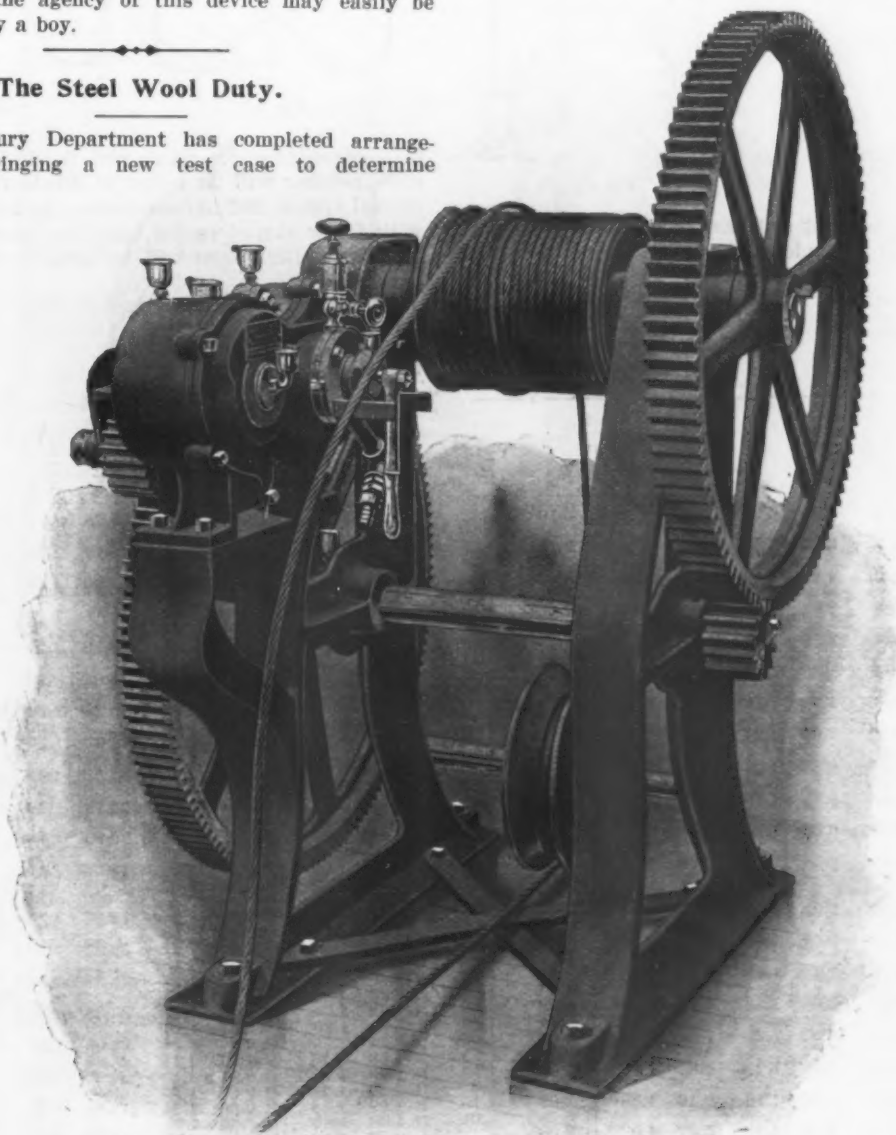


Fig. 3.—An Equipment for Traversing Heavy Parts of Machine Tools. Built for the Niles Tool Works by the Pilling Air Engine Company.

the proper rate of duty applicable to steel wool under the terms of the Dingley tariff law. As set forth in previous issues of *The Iron Age*, the Government insists on a high duty on steel wool, whereas the importers argue for a more reasonable assessment. Several months ago the Federal courts rendered a decision against the claims of the Government, but the Secretary of the Treasury declined to abide by the judicial finding. On the contrary, he ordered a new test case to be prepared. John A. Kemp, counsel for the Treasury Department at New York, stated recently that the necessary preliminary work has been completed. The counsel said that an importation representative in all particulars of the usual entries of steel wool had been chosen. Mr. Kemp declined to give the name of the firm whose merchandise will figure in the test litigation. It was, however, announced that the initial hearing in the case will take place the first week in September. The Board of United States General Ap-

porters all duties in excess of the rate declared legal by the tribunal of last resort.

The B. F. Sturtevant Company, Boston, Mass., has recently sold for export to Japan a complete lumber dry kiln equipment consisting of a steel plate engine driven fan with direct connected heater and a full outfit of iron work for lumber trucks, tee rails, &c.

The eleventh convention of the Pattern Makers' League of North America is being held in Pittsburgh this week. James Wilson of Erie, Pa., is president. The organization claims to have about 6000 members.

England has 31 ocean steamers of more than 12,000 gross tons each; Germany has 14, the United States 6, Holland 3, France 1 and Belgium 1. The total tonnage of these 56 ships is 840,521.

## Designing Beam Rolls.

The designing of rolls for structural shapes has in the past usually been left to the roll turner, who, as a general rule, does not use systematic tables, but works by a templet cut according to results previously obtained by experience. There have been published from time to time articles containing valuable information

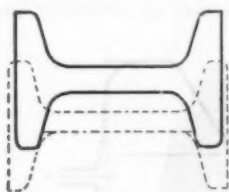


Fig. 1.

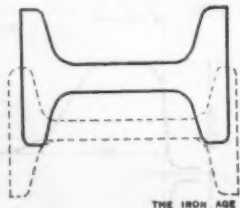


Fig. 2.

on the subject, but not sufficient to enable a draftsman to design a good roll unless he has had a certain amount

Rolls for certain shapes are shown in detail, but it does not follow that the design is suitable for every mill, irrespective of the number of stands. While one mill

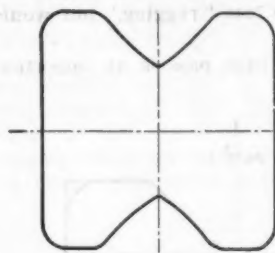


Fig. 4.

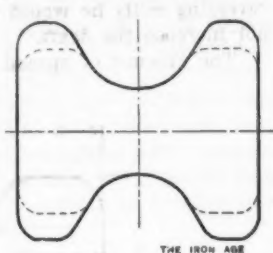


Fig. 5.

may advantageously rough and finish in one stand of rolls, another will do better to divide the work among several stands, and in consequence the former must work with fewer shaped passes than the latter. In the first case a smaller bloom will be used in the first shaped

Laying Out Table for German Standard Beams Nos. 40 and 32.  
(One millimeter has been figured as 1-25 inch.)

1	2		3		4		5		6		7		8		Remarks.
	Width in.	Spread in.	Thickness of web.	Ratio.	Height of flange.	Ratio.	One-half height of flange.	Ratio.	Dimension of A.	Ratio.	Dimension of a.	Ratio.	Area sq. in.	Ratio.	
Bloom Pass	11.20	....	12.40	....	12.40	....	6.10	....	....	....	....	....	138.88	....	
1.....	11.44	0.24	6.20	2.00	11.40	1.09	B 5.70	1.09	B 5.20	....	B 2.88	....	112.74	1.23	Roughing rolls for sections 32 to 40.
2.....	11.80	0.36	4.16	1.49	10.54	1.08	B 5.70	1.09	B 5.20	....	B 2.80	....	91.20	1.24	
3.....	12.20	0.40	2.92	1.43	9.80	1.08	B 5.27	1.08	B 4.20	1.24	B 2.44	1.18	73.47	1.24	
4.....	12.76	0.56	2.12	1.38	9.16	1.07	B 5.27	1.08	B 4.20	1.24	B 2.36	1.18	59.22	1.24	
5.....	13.28	0.52	1.60	1.33	8.60	1.07	B 4.90	1.08	B 3.48	1.21	B 2.06	1.18	48.06	1.23	
6.....	13.80	0.52	1.24	1.28	8.10	1.06	B 4.90	1.08	B 3.46	1.21	B 2.00	1.18	39.28	1.22	Intermediate rolls for sections 38 to 40.
7.....	14.32	0.52	1.00	1.24	7.66	1.06	H 4.76	1.03	H 2.83	1.23	H 1.67	1.23	32.61	1.20	
8.....	14.80	0.48	0.83	1.20	7.26	1.06	H 4.40	1.11	H 2.93	1.18	B 1.71	1.17	27.60	1.18	
9.....	15.28	0.48	0.72	1.16	6.90	1.05	H 4.28	1.11	B 2.42	1.17	B 1.44	1.16	23.78	1.16	
10.....	15.76	0.48	0.63	1.13	6.58	1.05	H 4.32	1.02	H 2.40	1.22	H 1.40	1.22	20.99	1.13	
11.....	16.16	0.40	0.58	1.10	6.30	1.04	H 4.24	1.01	H 2.00	1.21	H 1.18	1.21	18.98	1.11	Finishing rolls for section 40.
3.....	12.20	0.40	2.92	1.43	9.80	1.08	B 3.86	1.12	H 2.07	1.16	B 1.22	1.15	73.47	1.24	
4.....	12.28	0.08	2.04	1.43	9.04	1.08	H 4.22	1.01	H 1.66	1.20	H 0.98	1.20	56.83	1.20	
5.....	12.36	0.08	1.44	1.41	8.36	1.08	B 3.44	1.12	B 1.80	1.15	B 1.07	1.14	43.38	1.31	
6.....	12.44	0.08	1.06	1.36	7.72	1.08	H 3.82	1.11	B 1.46	1.14	B 0.88	1.12	33.31	1.30	
7.....	12.52	0.08	0.82	1.29	7.16	1.08	H 3.44	1.11	H 1.51	1.19	H 0.90	1.18	26.05	1.28	Intermediate rolls for sections 32 to 36.
8.....	12.60	0.08	0.66	1.24	6.64	1.08	H 3.44	1.11	B 1.29	1.13	B 0.80	1.10	20.67	1.26	
9.....	12.68	0.08	0.56	1.18	6.16	1.08	H 3.44	1.11	H 1.28	1.18	H 0.78	1.16	16.88	1.23	
10.....	12.76	0.08	0.50	1.12	5.72	1.08	H 3.46	1.01	H 1.12	1.15	H 0.70	1.14	14.24	1.18	
11.....	12.92	0.16	0.46	1.09	5.32	1.07	B 3.12	1.11	B 1.16	1.10	B 0.72	1.08	12.50	1.14	
							B 3.15	1.10	B 1.04	1.08	B 0.65	1.08			Finishing rolls for section 32.
							H 3.15	1.10	H 1.04	1.12	H 0.65	1.12			

NOTE.—The ratio is in each case that of the same dimension as in the preceding pass.

of practice. The following abstract of an article by Carl Holzweiler of Rothe Erde, Germany, published in

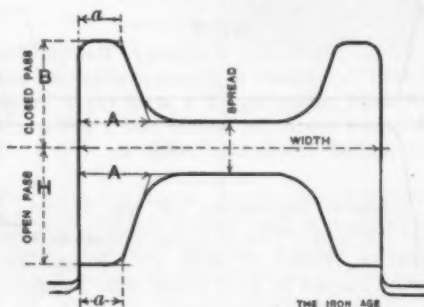


Fig. 3.

*Stahl und Eisen*, is for the purpose of making public data used by him, first, to lay out the rolls and then to see whether or not the design is satisfactory.

pass than in the last case. The total number of passes may be the same, more square passes being used if there are fewer shaped ones. Some mills have 13 shaped passes to finish the same section for which other mills use but 5, while using practically the same total number from the bloom down. The main thing is to lay out the rolls to suit the mill by arranging the draft so that the piece will be seized and put through without difficulty. Reversing trains which are moving slowly when the piece enters will seize the same more readily than mills which run in one direction only, and in consequence as a general rule they permit a heavier draft. If the latter is too heavy there is delay at each pass and the piece becomes cold, thus making the conditions still worse. In consequence the engine uses more power, the wear on the rolls increases and the production is less than if a couple more passes were made. In the examples given the author claims to have used the maximum draft allowable with a 35½-inch nonreversing mill, and state

that it would be necessary to "rag" the rolls as much as possible without damage to the finished product. For reversing mills he would use less "ragging," but would not increase the draft.

The amount of spread in each pass is an important

shaped passes. It is therefore impossible for all mills to use rolls of the same design. Nonreversing mills do not permit of as much spreading as those which reverse. By means of the table herewith given, modified to suit the particular mill, it should, however, be easy to lay

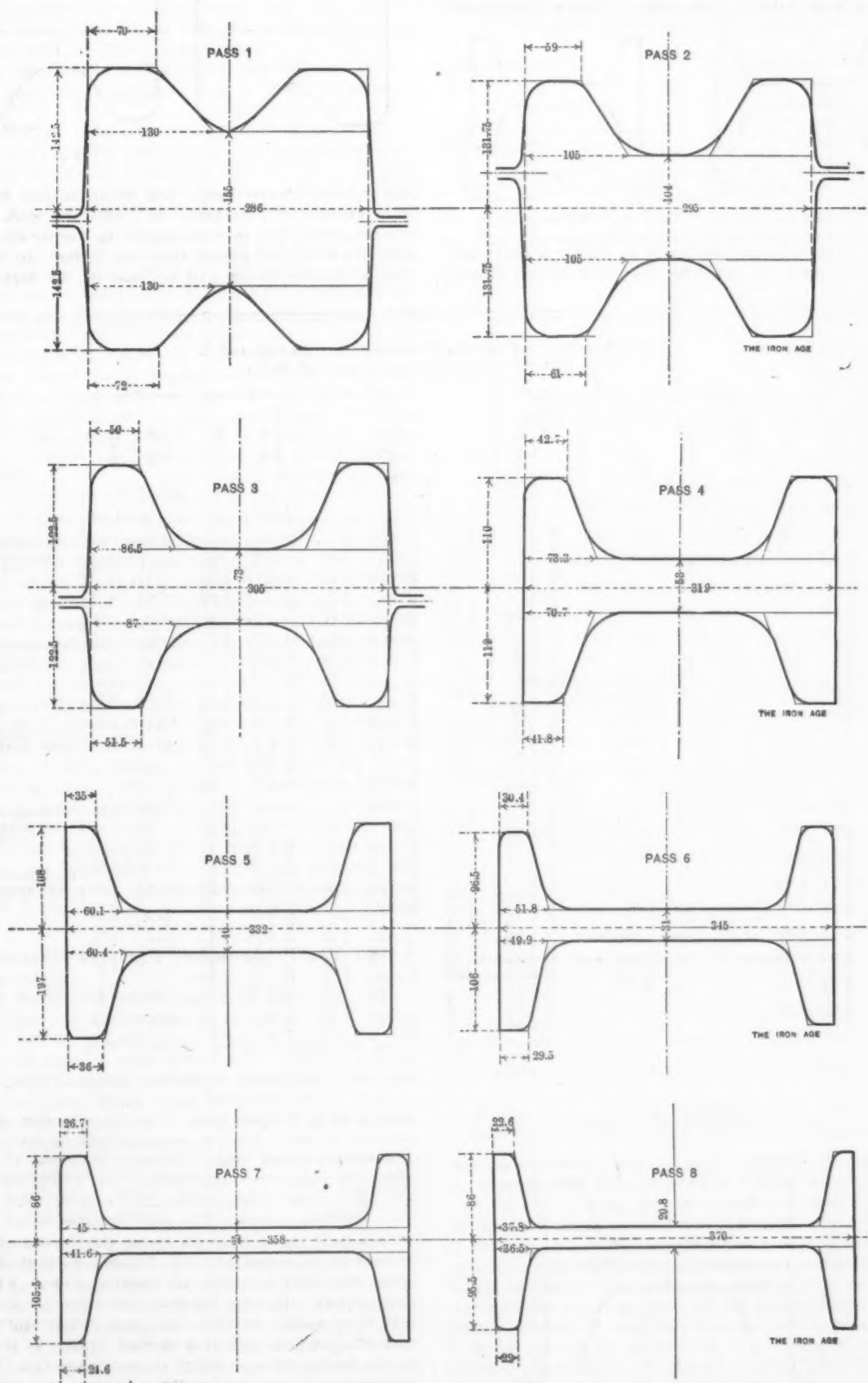


Fig. 6.—Roll Design for a German Standard Beam, No. 40. Forst 8 Passes. Dimensions in Millimeters.

matter on account of its effect on the facility or otherwise with which the rolls seize the bar. The correct spread is shown in Fig. 1. The greater the spread the smaller must be the lateral pressure at the flanges, and in consequence the greater will be the number of the

out the rolls correctly. This table should be studied in connection with the diagram shown immediately below it. Should it be necessary to increase the number of passes, or, in other words, to decrease the draft, it is only needful to make the ratio figures in the table corre-

spondingly smaller. The dimensions of the various parts of the section are so arranged that the work on all parts is as uniform as possible.

It is not advisable to overdo the work on the material, as the latter is not all of equal quality and an occasional heat may show cracks. The author recommends the following number of shaped passes as the minimum:

German standard beams.*	Shaped passes.
Nos. 8 to 10 .....	5
Nos. 11 to 20 .....	7
Nos. 21 to 30 .....	9
Nos. 32 to 40 .....	11
Nos. 42½ up.....	13

\*The numbers of German standard beams represent approximately the height expressed in centimeters; thus No. 32 is 31.9 cm. high, and No. 40 is 40.4 cm. high.

In the case of especially light sections the number of shaped passes must be greater, as the thin web tends to

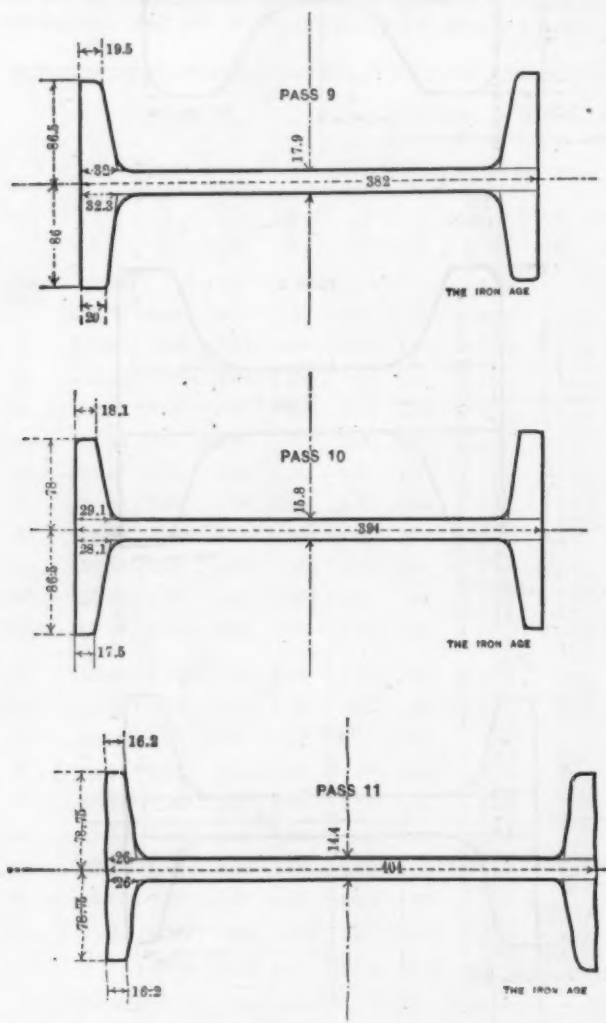


Fig. 6, Continued.—Final 3 Passes.

roll wavy if the draft in the finishing passes is too great. In some such cases it is recommended that there be no draft at all on the web in the last pass.

It is very important that the roughing rolls be designed to suit as many different sections as possible in order to reduce the number of roll changes to a minimum. This can only be done by giving the maximum spread in the finishing rolls for the larger sections, in order that the passes on the roughing rolls may be narrow. There is a limit, however, to the amount of spread, which is reached when there is danger of the piece not entering the rolls easily. The flanges of the various passes must enter slightly into the flanges of the following pass, especially in the early stages, as the metal does not then yield sufficiently to readily fill the wider pass.

Fig. 1 shows the proper amount of spread, which in Fig. 2 is too great. The width of the bloom at the first shaped pass must be made to suit the number of such passes and the spread in each. The height of the bloom

need not be more than 1.6 to 2 times the width of the flange of the finished section.

The laying out table herewith given shows how the draft and the decrease in area are evenly divided among the passes. In columns 5, 6 and 7 the letter H indicates an open and B a closed pass. In the former case the horizontal draft is less than in the latter, while the vertical draft is greater, because with an open pass the flanges are stretched, whereas in a closed pass they are compressed. Fig. 3 is a diagram explanatory of the terms used in the table.

With figures obtained from the table the first shaped pass is laid out, and it can then be seen if the shape is satisfactory. If this is the case the remaining shaped passes will be equally so. The shape may be regarded as satisfactory if it seems likely that the steel will fill out the pass. Fig. 4 shows a pass in which this will be the case, while that shown in Fig. 5 is unsatisfactory, as the development of the web is too great in comparison to the thickness of the flanges. The material for the latter will be pulled down by the wide web and will not fill out the flanges, in the manner shown by the dotted lines. As a result of this the flanges would not fill out the succeeding passes and would probably show seams when finished. If the figures from the table, when plotted, result in a first shaped pass such as that shown in Fig. 5 it will be necessary to see if the vertical draft in the various passes can be increased, and if this cannot be done more passes must be used.

In the table and in the drawings Figs. 6 and 7 German standard section No. 40 is worked out in detail. In designing the rolls a mill of three two-high stands with rolls 8 feet 3 inches between housings and 36 inches diameter has been assumed. The result shows that one pair of roughing rolls will do for all sections from Nos. 32 to 40, inclusive, while two pairs of intermediate rolls will be required, one for Nos. 32 to 36 and the other for Nos. 38 to 40. The rolls in the first two stands are made of steel, as the collars are too narrow for cast iron. Pass 5 in the intermediate rolls is placed between passes 7 and 8 in order to obviate the necessity of two double collars. By this arrangement it has been possible to make the remaining collars thicker, and it should not cause any difficulty in rolling. The ratios given in the tables are of course only applicable to the mill assumed and the sections referred to. They will vary according to the size of the section, the diameter of the rolls and the power of the engine. The purpose of the article is simply to show how systematically the rolls for any mill should be laid out.

### Half Yearly Canadian Pig Iron Statistics.

The American Iron and Steel Association has received direct from the manufacturers the statistics of the production of pig iron in Canada in the first six months of 1905. The figures show a large increase as compared with either of the two halves of 1904, as will be seen by the following table, which gives the production by fuels, in gross tons, in half yearly periods:

	Fuel used—Gross tons.	First half of 1904.	Second half of 1904.	First half of 1905.
Coke .....		111,840	139,831	188,541
Charcoal .....		8,803	10,468	21,665
Total .....		120,643	150,299	210,206

The Canadian production of pig iron in the first half of 1905 was the greatest in any half year in the history of the Dominion, exceeding by 48,453 tons that of the last half of 1902, the next highest half year, when 161,753 tons were made. It was also greater than the production of any whole year prior to 1901. Down to that year the production of pig iron in Canada never amounted to 100,000 tons in any calendar year.

The production of Bessemer pig iron in the first half of 1905 amounted to 63,785 tons. There was no production of Bessemer pig iron in the first half of 1904, and only 26,016 tons were made in the second half of that year. The production of basic pig iron in the first half of 1905 amounted to 68,378 tons, against 28,981 tons in the first half of 1904 and 41,152 tons in the second half.

The unsold pig iron held by Canadian manufacturers on June 30, 1905, none of which was intended for their own consumption, amounted to 35,629 gross tons, as compared with 35,119 tons on December 31, 1904, and 36,868 tons on June 30, 1904. Of the unsold stocks on June 30, 1905, a little less than 6500 tons were made with charcoal, the remainder being coke iron.

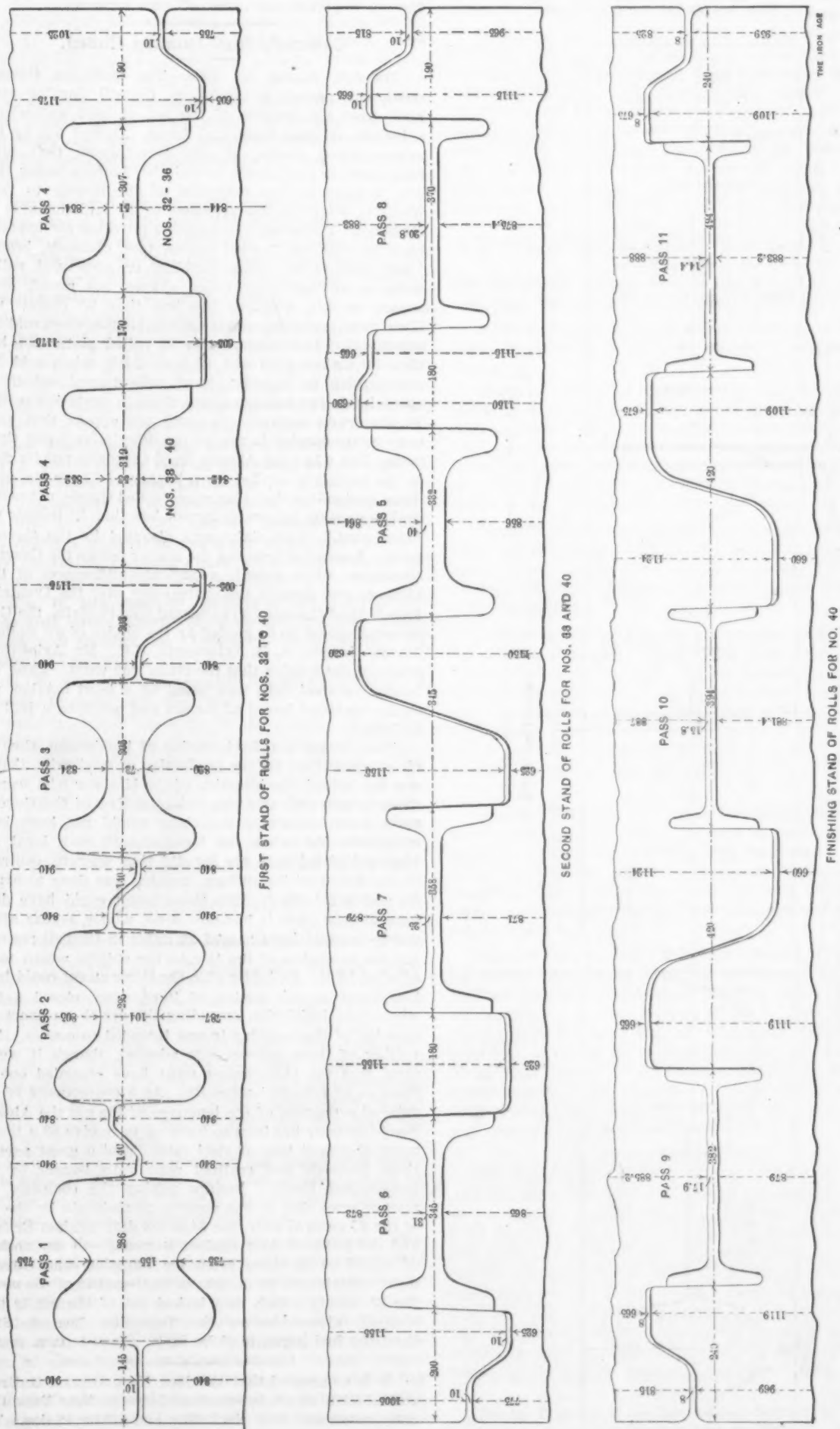


Fig. 7—Arrangement of Rolls for German Standard Beams Nos. 32, 36, 38, 40 and 43. Dimensions in Millimeters.

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charcoal. In addition three coke furnaces were partly erected on June 30, 1905. Work upon all these furnaces had, however, been suspended for some time.

of the period was 13, of which 8 used coke and 5 used charcoal. The number of furnaces that were idle during the whole period was three, all coke furnaces.

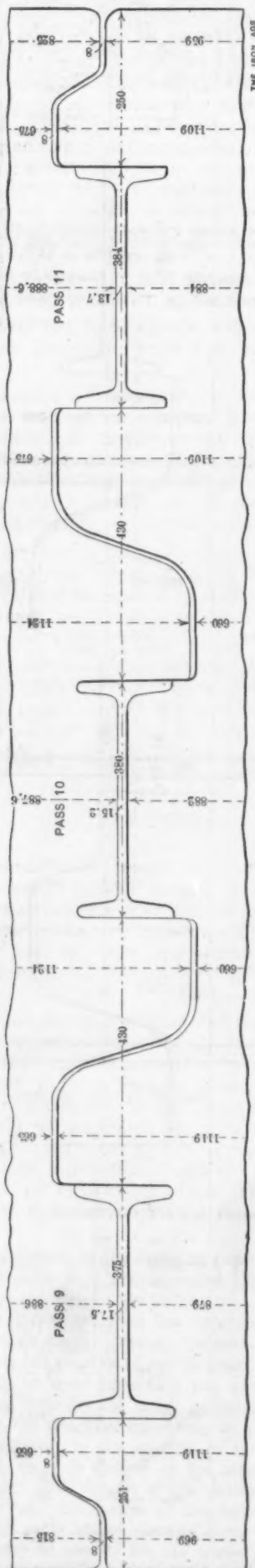
### Canada's Rail Bounty Ended.

TORONTO, August 12, 1905.—The Dominion Government has passed an order in Council barring steel rails from the benefits of the act of 1903 authorizing a bounty on steel structural forms. It was not by the acknowledged design of the Government that steel rails came to participate in the distributions under that act. Apparently the extension of the bounty to rails was due solely to inadvertence, or to indistinctness of language. The statute in question provided for bounties on wire rods, on "rolled angles, tees, channels, beams, joists, girders or bridge building or structural rolled sections, and on other rolled shapes, not round, oval, square or flat, weighing not less than 35 pounds per lineal yard, and also on flat eye-bar blanks, when sold for consumption in Canada," also on rolled plates not less than 30 inches wide and  $\frac{1}{4}$  inch thick, when sold for consumption in Canada. Steel rails turned out to be concealed in the passage above given in quotation marks. To the trade generally it could not appear that rails were comprehended in any of the descriptive terms there used. But when the Algoma Steel Company put its rails on the market it applied for a bounty of \$3 per ton upon them, contending that they were "rolled shapes, not round, oval, square or flat, weighing not less than 35 pounds per lineal yard." This claim was disputed by the Government. Instead of bringing the matter before the Court of Exchange, which usually adjudicates differences of this kind, as was done in the controversy over the Dominion Iron & Steel Company's challenged bounty claim, the Government agreed to be guided by the advice of an eminent Toronto lawyer, A. B. Aylesworth, K.C. Mr. Aylesworth returned the opinion that the claim was valid. Thus the bounty on steel rails was based on a legal opinion, not on the manifest intent of the act and not upon a judicial decision.

That it was not the intention of Parliament thus to allow a premium for the production of steel rails, that it was not indeed the intention of the Minister who framed the act, was evidently the understanding of the Government itself, otherwise the claim would not have been contested. Yet when the Government's own legal adviser submitted that the act did thus operate, contrary to the intent of its authors, nothing was done to arrest its accidental effect. The Government could have done immediately what it has now done, nearly a year afterward—it could have passed an order in Council restricting the operation of the law to the objects meant to be affected by it. Or better still, the Government could have introduced in the session of Parliament, closed a few weeks ago, legislation amending the act to an exact expression of the meaning it was intended to convey. But neither of these courses was adopted, though it would seem that the Government must have regarded one of them as of remedial necessity. As a consequence of the delayed correction of the language of the act the Algoma Steel Company has been so lucky as to receive \$3 a ton on many thousand tons of steel rails. And a great part of these proceeds was realized upon rails bought by the Government itself. Besides paying the company the market price that it was possible to maintain by the aid of the \$7 general duty, the \$4.66 2-3 duty against Britain, and the \$9.33 1-3 duty against Germany—to say nothing of additions to these rates for dumping—the Government contributes \$3 a ton to the company. However, the \$3 bounty which thus leaked out of the act is now stopped, almost before the Dominion Iron & Steel Company had begun to share in it.

C. A. C. J.

It is announced that the New York Central Railroad will abolish 55 grade crossings between New York City and Croton and New York City and White Plains. The company proposes to pay one-half the expense of the work provided the State of New York will pay one-quarter and the municipalities the remaining quarter. The proposed change is said to be a part of the New York Central's plan for the electrification of its suburban divisions.



## PERSONAL.

John Burns has resigned as president of the Burns Uniform Steel & Metallic Company, Pittsburgh, with works at Latrobe, Pa. D. J. Bole has been elected to succeed him.

Charles M. Schwab sailed for Germany August 15, accompanied by Archibald Johnston, an engineer, and one of the directors of the Bethlehem Steel Corporation. Vice-President Edward M. McIlvain of the same company is now in Europe.

Frederick L. Lane has been appointed superintendent of the Chapman Valve Mfg. Company, Indian Orchard, Mass., to fill the vacancy caused by the resignation of C. A. G. Winther. Mr. Lane has been connected with the company for nearly 29 years, and has been assistant superintendent for the past four years.

George Higley has been made assistant superintendent of the Lower Mills of the American Steel Hoop Works of the Carnegie Steel Company, at Youngstown, Ohio. He has been connected with the hoop plants for 13 years.

Wm. B. Ullmann has disposed of his interest in the Moline Malleable Iron Company, St. Charles, Ill., to T. S. Fauntleroy, who succeeds him as president of the company. Mr. Fauntleroy has been secretary and manager of the Ewart Mfg. Company, Chicago.

C. H. Zehnder of Rogers, Brown & Co., Philadelphia, has been made chairman, and Dr. Richard Moldenke of Watchung, N. J., secretary, of a new Committee on Standards for Testing Coke for Foundry Use appointed by the American Society for Testing Materials.

Wm. H. McFadden of Mackintosh, Hemphill & Co., Pittsburgh, and Joseph T. Speer of the Pittsburgh Valve, Foundry & Construction Company, have sailed for Europe.

M. F. Bonzano was recently appointed manager of Victoria Furnace, at Goshen, Va.

Pella Anderson has resigned the position of general manager of the Brown-Corliss Engine Company, Corliss, Wis., to accept the position of general manager of the Power & Mining Machinery Company, Cudahy, Wis.

J. H. Prastka, for nine years in the employ of J. T. Carmody, at Cedar Rapids, Iowa, has opened an office in the O'Hara Block, Cedar Rapids, as manufacturers' agent for the sale of iron, steel, machinery, boiler makers' supplies, tools, &c. He will represent, among others, Joseph T. Ryerson & Son and the Scully Steel & Iron Company, Chicago.

T. McNamara, who has been superintendent of the Colorado Fuel & Iron Company's iron mine at Orient, Col., for some years, has been transferred to the superintendency of an iron mine of the same company at Florio, New Mexico.

Dr. G. G. Revay, 45 Cedar street, New York, controlling the American rights of Coppee's patent coke ovens, sailed August 8 for Europe on an extensive business trip. It is stated that several large plants on this system are about to be constructed in this country for the recovery of by-products.

Felix F. Wiener, vice-president and treasurer of Henry Pels & Co., 68 Broad street, New York, is going abroad on a short business trip. During his absence I. Maddaus, secretary, will have charge of the office.

Augusto T. Willink of the Pioneer Iron Works, New York, expert on sugar machinery, has returned to Havana, Cuba, where he will open an office as representative of the firm.

Halbert P. Gillette, formerly associate editor of *Engineering News*, and George H. Gibson, formerly manager of publicity for the International Steam Pump Company, manager of the advertising department of the B. F. Sturtevant Company and editor of the Westinghouse Companies' publishing department, have formed a partnership as advertising engineers under the name of the George H. Gibson Company, with offices in the Park Row Building, New York City. They undertake to conduct a firm's advertising in the same manner as would a de-

partment in the firm's own offices, leaving the actual purchasing of space and printed matter in the client's hands.

L. E. Thomas, formerly with the United Engineering & Foundry Company, Pittsburgh, has accepted the general management of the Birdsboro Steel Foundry & Machine Company, Birdsboro, Pa., taking charge August 1. Mr. Thomas is well known to the trade and was tendered the position of assistant general manager of the Republic Iron & Steel Company, whose engineering work on its new rail mill at Youngstown was in his charge a month prior to his acceptance of his present position at the Birdsboro plant. Another piece of engineering work conducted by Mr. Thomas was that of the construction of the Ohio plant of the Carnegie Steel Company.

Charles Parsons, who has had wide experience in the pneumatic tool business, is now associated with the Independent Pneumatic Tool Company, Chicago.

A. M. Steinhardt has been elected treasurer of the National Engineering & Stamping Company, succeeding J. E. Ingram.

Harry R. Hall has completed his contract with the Delaware & Hudson Company and has been succeeded by James Duane as superintendent of Standish (N.Y.) Furnace for the Northern Iron Company, which lately leased the plant. In recent practice at Standish Furnace Mr. Hall has used 100 per cent. of Chateaugay concentrates in the manufacture of low phosphorus pig iron.

Henry W. Toothe has resigned as manager of the railroad department of the Magnolia Metal Company and has accepted a position as manager of the Babbitt department of the A. C. Stiles Anti-Friction Metal Company, New Haven, Conn.

J. P. Shaddick, who has been connected with the rolling mill department of the National Tube Company, at Lorain, Ohio, has resigned, and on August 22 becomes general superintendent of the blast furnace, steel works and blooming mill of the Alabama Steel & Wire Company, at Gadsden, Ala.

## OBITUARY.

HORACE C. SILSBY, a veteran manufacturer, died at Seneca Falls, N. Y., August 12, aged 88 years. He was born in Connecticut, and went into business in Seneca Falls in 1836. Starting with iron goods, he formed the American Fire Engine Company. In 1856, when associated with Birdsall Holley, Mr. Silsby made the first rotary steam fire engine.

ALAN W. WOOD died at Roosevelt Hospital, New York, on Sunday, August 13, after an operation. Mr. Wood had not been in active business for four years. He was secretary for a number of years of the W. Dewees Wood Company, McKeesport, Pa., of which his father was president, previous to its absorption by the American Sheet Steel Company. His brother, Richard G. Wood, is vice-president of the Alan Wood Iron & Steel Company, Philadelphia. Mr. Wood was 55 years old. His widow, two sons and four daughters survive him.

The reports of the Iron Molders' Union of North America show that 5330 out of work stamps were issued in the quarter ending July 31. This is a decrease of 5708 from the number used in the first three months of this year, and is 16,649 less than were given out in the corresponding quarter of 1904. These figures show a decided improvement in the foundry trade throughout the country. The membership report of the union shows 1656 initiations and 2017 reinstatements in the quarter, making a total of 2721 initiations and 3803 reinstatements for the first six months of the present year.

The By-Products Coke Corporation, Solvay, N. Y., has certified to \$1,000,000 capital stock in Illinois. Its 120-oven plant on the Calumet River, Chicago, is progressing rapidly, and the hope is entertained that it may be in full operation by November 1.



times is of course to be reckoned with. Yet the length of the list and the prominence of many of the firms included in it, together with the establishment of the employers' labor bureau as a permanent factor, and the elements of weakness that have developed in the Iron Molders' Union in the past two years, seem to point to an increase rather than a decrease in the number of foundries operated as open shops.

### The World's Pig Iron Production.

Substantially accurate statistics of pig iron production in 1904 are now available for countries which in 1903 produced about 95 per cent. of the total. Returns from some of the minor countries are usually so belated that it is just as well to make comparisons at this time. The table given below presents the actual returns for all countries in 1903, the actual returns for 1904 which are available, and assumes, in the case of countries which in 1903 made about 5 per cent. of the total that their production in 1904 did not vary from that in 1903. All countries outside of the United States, Great Britain and Canada make returns in metrical tons of 2204.6 pounds and these have been reduced to gross tons, so that all the figures in the table refer to gross tons of 2240 pounds:

	1903.	1904.	Change.
United States .....	18,009,252	16,497,033	- 1,512,219
Germany and Luxemburg .....	9,926,251	9,944,261	+ 18,010
United Kingdom .....	8,811,204	8,562,658	- 248,546
France .....	2,795,627	2,952,377	+ 156,750
Russia .....	2,415,173	2,830,800	+ 424,627
Belgium .....	1,197,275	1,262,566	+ 65,291
Canada .....	265,418	270,942	+ 5,524
Austria-Hungary .....	1,395,588		
Sweden .....	481,961		
Spain .....	297,874	2,474,513*	
Italy .....	74,089		
Other countries .....	225,000		
Total .....	45,894,713	44,804,150	- 1,090,563

\*Returns for 1904 not yet available.

The world's production of pig iron has been approximately as follows, in tons of 2240 pounds:

Year.....	Gross tons.	Year.....	Gross tons.
1855.....	6,150,000	1890.....	27,157,000
1860.....	7,400,000	1895.....	28,871,000
1865.....	9,250,000	1900.....	40,087,616
1870.....	11,900,000	1901.....	40,100,000
1875.....	13,675,000	1902.....	43,324,068
1880.....	17,950,000	1903.....	45,894,713
1885.....	19,100,000	1904.....	*44,804,150

\*About 5 per cent. estimated.

The tendency of production in the United States toward wide variations is well shown in the first table. While the average production in the United States in the two years constituted but 38 per cent. of the total, there was a large decrease from 1903 to 1904, while other leading countries showed a net increase, this decrease being more than three times the net increase; so that the net decrease of all countries is only about two-thirds the decrease shown by the United States alone.

In the current year the United States is likely to swing as far in the opposite direction from the world's average change. Statistics of production in the first half of this year by various countries outside of the United States, and aggregating between 5,000,000 and 6,000,000 tons, show an increase of between 3 and 4 per cent. from production in the similar period of last year. The United States, on the other hand, has shown the remarkable increase of 39 per cent., comparing the first seven months of this year with the same period last year, this increase being at the rate of over 6,000,000 tons a year. It is reasonably certain that the United States will in 1905 show an increase over 1904 of something more than 5,000,000 tons, while the rest of the world may perhaps show no increase, and in no event is likely to show an increase half as great as this.

### A Great Year for American Cereal Crops.

The Government crop report, issued August 9, confirms the general belief relative to bounteous crops this year. The corn crop, on the basis of the report of its condition August 1, is estimated at 2,700,000,000 bushels. This, if realized, will surpass all records. The nearest approach to these figures was the census report for the crop of 1899, which showed 2,666,440,000 bushels, but was considerably in excess of the Department of Agriculture's report of the yield of the same year. The estimate of the total wheat yield for this year is now 709,731,000 bushels, which has but once been exceeded—namely, in 1901, when the total wheat crop amounted to 748,000,000 bushels. The crop of oats is estimated at 949,698,000 bushels, which falls only a little short of a record breaking yield. These figures cannot but be stimulating to practically all branches of trade. They are especially promising to the railroad interests, as they insure abundant traffic for many months. The huge crop figures have a double significance at this time. They not only promise large business for the railroads, but at the same time good returns to the producers, as cereal crops in other portions of the world are not up to the average this year. Good prices will therefore be realized on all such products.

### A Better Distribution of Demand.

Not many weeks ago it was a common query in the iron trade how the expanding demand coming from the railroads was to extend its influence to other lines than those directly affected. In 1904, when plate, structural and rail mills were only partly employed, it was a matter of comment that consumption in the lighter lines—wire products, sheets, tin plates and bars—was relatively much better. The railroads were not in the market for more than absolute necessities, and track laying, bridge building and car and locomotive construction languished. In the early months of the present year, when heavy shipments were being made to bridge works, locomotive works and car shops—the reverse of the situation in 1904—it was often said that the iron trade was enjoying a railroad prosperity which showed little sign of spreading to the foundries and to the mills rolling the light products. A feeling existed that the buying movement was only a necessary compensation for the beggarly railroad consumption of last year and did not necessarily signify a great year for the iron trade.

More recently evidence has been furnished that the activity in iron and steel products has widened into a general movement. Foundries, which are generally a reliable index of conditions, since they turn out a vast variety of products representing a diversified local demand, have had a long siege of poor business, apart from a few lines, including stoves; but their recent purchases of pig iron indicate that they are getting orders more freely and have good prospects for the remainder of the year. Added testimony to the great improvement in the foundry industry in the past three months is furnished by the statistics of the Iron Molders' Union showing less than half as many out of work stamps issued in the second quarter of this year as in the first quarter.

Referring again to the lighter rolling mill products, recent market developments show an activity that forecasts a good fall trade and in some lines, notably bars, a heavy movement, when the requirements of dealers shall have been added to the liberal contracts recently placed by Central and Western consumers, particularly agricultural machinery manufacturers. Indeed, the bar trade has come to be regarded by iron and steel manu-

facturers as the most stable of their lines, the one least affected by booms and depressions. More recently bar business has shown an expansion in a new line. While concrete has been used at times at the expense of heavy structural steel, the call for corrugated and twisted bars for reinforced concrete has grown in an unexpected way in the past six months and the use of such bars promises to bring no inconsiderable tonnage to the mills.

In view of the heavy rail business of July, putting the rail mills in the same condition of full occupation into early 1906 that had previously developed in structural lines, and with recent signs of improvement in the lighter products, it would appear that the second half of 1905 will show a more even employment of all the diversified machinery of production than in any one of the three half year periods preceding.

### The Exhaust Steam Nuisance.

It is gratifying that the papers in the vicinity of New York City are beginning to exert their influence in abating the nuisance of the careless discharging of exhaust steam from buildings whereby the condensed steam is allowed to fall upon passers-by in the streets. The last issue of *Power* contains the following pithy editorial comment: "From one of the tall buildings in New York there descends at frequent intervals and for long sustained periods a smart rain of condensed steam equal to a summer shower. . . . Has the engineer never heard of such a thing as an exhaust head, or is he . . . oblivious to the discomfort which he is causing the public?"

The only criticism we would make of the above is that the reference to one building is far too limited. There are any number of buildings in New York of which the same is true and doubtless the annoyance is common in many other large cities. The only remedy for it is to be looked for through the municipal authorities who have the power to restrict it by proper ordinances. If the daily newspapers and the technical press would combine in urging that some action be taken by the city the trouble would very probably be speedily stopped. The disregard for public comfort is especially aggravating because it is entirely unnecessary. Exhaust heads, as intimated by our contemporary, would cure the evil, and should be considered an essential part of the equipment of modern power plants that are run noncondensing.

### CORRESPONDENCE.

#### The Failure of Blast Furnace Inwalls.

*To the Editor:* The failure of inwall linings in many of the large modern blast furnaces after being in blast a comparatively short time is so frequent that the success or failure of many of these expensive plants is dependent on finding a remedy for this trouble.

Many theories have been advanced as to the cause of the rapid wearing away or disintegration of the lining. That which attributes it to the faulty distribution of the stock by the skip hoist and charging device seems to have received the most credence. That stock could be charged into a furnace in such a faulty manner as to cause the furnace to work very badly the writer has no doubt, but in his opinion it seems hardly possible that the slight variations in the charging by the modern top can be responsible for this evil.

In "Metallurgy of Iron," by Thomas Turner, page 98, under the head "Wear of Linings," we find the following:

According to Luermann, the chief causes which lead to the wearing away of the furnace linings may be divided under four heads:

1. The actual wear due to contact with the descending charge; this is relatively unimportant.

2. The action of alkaline cyanides and other substances present in the furnace gases, which, though probably important, produce an effect the amount of which is at present not accurately determined.

3. The action of sodium chloride or other alkaline substances contained in the coke; this is probably one of the most important causes of wear, as at a high temperature salt is decomposed by silica and a fusible silicate is obtained.

4. The flaking of the bricks due to deposition of carbon from carbon monoxide around any iron particles reduced from impurities in the original bricks. The last cause can to a considerable extent be prevented by a proper selection of bricks.

Again, on page 141 of the same work, under the head "Cyanides in the Blast Furnace":

Sir W. Roberts-Austin attaches more importance to the action of cyanides than some other writers on this subject, and states that in the lowest region of the blast furnace the reduction of the residual oxide of iron is accomplished chiefly through the agency of the cyanides formed near the tuyeres, the cyanide itself becoming changed to cyanate. This is probably decomposed with the formation of nitrogen and an alkaline carbonate. The alkaline salts condense in the upper part of the furnace and are again brought down to the level of the tuyeres as the materials descend. Consequently each particle of alkali metal does duty over and over again, the alkalies introduced in small quantities in the fuel accumulating in the furnace to a very large extent.

By referring to Lowthian Bell's "Principles of the Manufacture of Iron and Steel," pages 216 to 224, it will be seen that the stock and atmosphere of the blast furnace between the tuyeres where the alkalis are volatilized and a point near the top where they are condensed or deposited are saturated with alkaline cyanides and carbonates.

By again referring to "Principles of the Manufacture of Iron and Steel," page 203, plate 6, Fig. 2, it will be observed that the temperature of a furnace between 24 and 32 feet above the hearth, or about the point at which the large furnaces usually show the first signs of weakness, is 1850 degrees F. As 1850 degrees F. is very much below the temperature of slag formation (See "Studies of Blast Furnace Phenomena," by M. L. Gruner, page 177), by combining silica, alumina and lime, it may be assumed that the linings are not destroyed by the lime; while on the other hand 1850 degrees F. is sufficiently high to cause silica and alumina combined with sodium or potassium carbonate to fuse very readily.

In view of the above it seems to the writer that the placing of a basic lining on the face of the inwall should prevent the destruction of the lining.

H. B. WEAVER.

WHARTON, N. J., August 7, 1905.

#### Boiler Horse-Power to Kilowatts.

*To the Editor:* Concerning the amount of boiler horsepower required per kilowatt generated there seems to be a diversity of opinion among power station engineers, as shown by the following interesting data, which I have compiled:

Station	B.H.P. K.W.	Remarks.
Metropolitan, N. Y. . . .	0.66	Reciprocating engines, Vert.
Manhattan, N. Y. . . . .	0.832	Reciprocating engines, Vert. Hor.
Kingsbridge, N. Y. . . . .	0.55	Reciprocating engines, Vert.
Interborough, N. Y. . . . .	0.75	Reciprocating engines, Vert. Hor.
New York Edison . . . . .	0.65	Reciprocating engines, Vert.
London Underground . . . .	0.758	Horizontal turbines.
Boston Edison . . . . .	0.819	Vertical turbines.

Economizers are installed in the Manhattan Elevated and the London Underground; the Interborough, New York, and the Boston Edison are so designed that economizers can be added later.

A. E. DIXON.

New York, August 3, 1905.

Lincoln Hutchinson, special agent of the Department of Commerce and Labor, now in Brazil, asserts that direct steamship connection is not an important factor in building up American trade in South America. He says he finds many of the largest and most experienced Rio Janeiro importers, men who deal in goods from both the United States and from Europe, inclined to laugh at the idea that American exporters are in need of greater facilities. They claim that they never have any difficulty in getting all the goods that are demanded from New York quite as readily as from London, Liverpool or Hamburg. Mr. Hutchinson's conclusions do not agree with a very common belief in this country.

## Record Breaking Ore Shipments.

DULUTH, Minn., August 13, 1905.—Every indication points to August as another record breaking month in ore shipments, and the trade is beginning to wonder if there will be an early close or when the let up is to commence. Duluth and Two Harbors are forwarding at a rate that is astonishing the iron trade, and there is every reason to expect that the tremendous business of July, when these ports forwarded 1,408,000 and 1,230,000 gross tons respectively, will be reached and probably exceeded during the present month. The railroads reaching these ports are adding to their equipment; cars and locomotives that were expected earlier in the season are arriving and are put immediately into service.

Mines are responding splendidly to the increased pace, even though many of them are troubled by floods, which have never been so frequent and disastrous as this year. After the two or three times earlier in the season that open pit mines near Hibbing were flooded out, and after the precautions that had then been taken to prevent any possible repetition of the occurrence, floods again filled several of the mines and stopped all operations during the present week. It has so happened this time that the open pits from which the greatest product was being secured were not seriously affected. All over the lake district labor remains satisfied and content, and there are no indications of a clash. Men are none too plenty, but more ample in supply than earlier. Owing to the poor class of miners necessarily employed on some ranges this year there have been more frequent fatalities than usual, and the year will close with a rather unusual death list.

### The Labor Situation.

In connection with the labor situation on the Lake Superior ranges a few figures gathered from the census reports of the Minnesota Bureau will be of interest. These are taken from the sheets of the enumerators at Chisholm, a typical Mesaba range town, which was not on the map in 1900, but now contains about 5000 persons. No other industry but that of lumbering, represented by a single saw mill, employing 200 men, has a foothold at Chisholm, and for this reason that place is chosen as typically mining. Of the 1090 Americans living in the town more than half are of foreign parentage on both sides. The European immigrants are led by persons from Finland, of whom there are almost precisely as many as of Americans. Finland too was the birthplace of the parents of about a fourth of the Americans. More than 800 miners and their dependents are from Austria, a rather discouraging fact, for these are among the least desirable of all the Europeans coming into this region. Scandinavians, strange to say, are much in the minority, with only 130, but nearly half of the Americans are of Scandinavian parentage. There are 102 Canadians, mostly in mercantile pursuits and politics, for the Canadian in the Northwest takes the political place won by the Irish in Eastern cities. The remainder of the population is a cosmopolitan and heterogeneous mass, upon which the home missionary has had so far very little effect. These include the following: Arabians, Australians, Belgians, Boers, Bohemians, Chinese, Danes, Egyptians, English, French, Germans, Hollanders, Hungarians, Italians, Irish, Jews, Livonians, Lithuanians, Montenegrins, Manxmen, Norwegians, Poles, Russians, Slavonians, Swiss, Spaniards, Servians, Scotchmen, Tyroleans, Welsh—in all pretty nearly a catalogue of the world. This looks like a discouraging mixture for licking into shape as American citizens, but it is an astonishing thing that nowhere is the American flag more respected and nowhere is the American ideal so looked up to or the school so sought after as among these people. It is interesting to note, too, in this connection that a great part of the public school work in most of these towns is the teaching of American ideals and what the liberty of this country means. These things are especially emphasized by the more progressive and thoughtful teachers, and therein lies hope.

### Mesaba Mining News.

Negotiations that have been under way for some time for the purchase of the Tod, Stambaugh & Co. holdings in the Swanzy district by the Cleveland Cliffs Iron Company have been concluded and the latter has taken possession. This includes Princeton mine and a considerable area of undeveloped or partially explored lands. The purchasing company already held Austin mine, a new development, and had done some exploration along the Swanzy range. Diamond drills have been working on these lands for some time prior to the close of this deal and are understood to have made very satisfactory finds. Princeton mine was formerly Swanzy, held by the Escanaba River, Land & Iron Company, and was in poor shape when taken over by Tod, Stambaugh & Co. Austin mine has been extensively improved on the surface during the past year or so, and now presents one of the most businesslike showings in that part of the Lake region; it is about a mile from Princeton location. Both properties will be worked steadily, and the exploration of the adjacent lands will proceed more rapidly than before.

Fire in the Cambria mine of the Republic Iron & Steel Company has been extinguished, and the shaft has been unsealed. No examination underground has yet been made, but it is feared the flames have seriously injured the mine and that much timbering will be required. This will probably end its production for the season.

The Oliver Iron Mining Company has made some important changes in the management of its Hibbing group, creating the office of assistant general manager and placing W. J. West in the position. The group now includes many mines and of enormous output. There are the Hull and Rust, the Burt, Pool, Morris and Sellers, the Pillsbury, Glen, Clark and Chisholm, the Monroe and Tener, and the Myers and St. Clair. Each of these groups is under a separate superintendent.

### Canadian Developments.

All mining explorations that have been under way in the vicinity of Loon Lake, Western Ontario, have ceased for the present and the efforts of the owners of the properties explored are now directed toward selling their holdings. Wiley Brothers of Port Arthur, who are leading owners in these developments, state that they have very rich finds, but the general mining public is inclined to doubt this. Just now experts for the Jones & Laughlin Steel Company are on the ground making preliminary examinations. There has been some diamond drilling with considerable pitting by the original explorers, and newspapers of the district have had much to say of results, but this sort of information is notoriously unreliable. The Government drill is now on some property of R. H. Flaherty, who has been connected more or less with iron explorations for some years, but this week the drill is idle. These finds lie on the south side of Loon Lake, and about three miles from Lake Superior, 25 miles east of Port Arthur, and if valuable are certainly well located for prompt and cheap shipment.

The Lake Superior Corporation, operating the Sault rail mills and furnaces, has awakened to its need of iron ore, and is now about to carry on explorations at various points in Ontario, where there have been sufficient indications to warrant expenditure. This is a pretty wide field, running from east of Michipicoten to west of Thunder Bay, and for a time the work will be in the nature of reconnoissance, though at some points the company has faith that it can quickly get at good ore. Algoma, or Western Ontario, has been merely scratched by the prospector, and it would appear that with the extensive and energetic work that has been done on the American side there would be important results, especially as there are indications galore. This work will doubtless be under charge of A. B. Wilmott, whose knowledge of the region is not surpassed.

An amalgamation of the Hunter-Mackenzie-Mann and the Marks-Wiley iron ore holdings in the Atikokan region of Algoma is being effected, and a very strong combination is the result. Work on the former property is proceeding rapidly, and it will be in shape to deliver ore to the Canadian Northern Railroad by the time the latter is ready and the works at Port Arthur are completed. At the present time operations at Port Arthur consist

entirely of dredging and pile driving. The company's large coal docks should be ready for business this year, but it is improbable that the furnace and coke ovens can be in operation before the spring of 1907, though the company expects a much earlier completion.

The Lake Superior Corporation expects to erect at the Sault a large coking plant, to supply not only its own furnace, but to handle the merchant coke trade of the tributary Canadian region. Its own requirements are about 150,000 tons of coke annually, and the works will therefore be an important industrial addition to the lake region. One of its furnaces is designed for charcoal fuel, but can be changed to coke if desired.

D. E. W.

### The British Iron Trade in 1904.

The annual statistical report of J. Stephen Jeans, secretary of the British Iron Trade Association, for the year 1904 is just at hand. Some of the statistics of production, as of pig iron and steel, in the United Kingdom last year have already appeared in these columns. The output of pig iron was 8,562,658 gross tons, against 8,811,204 tons in 1903, 8,517,693 tons in 1902 and 7,851,830 tons in 1901. The production of Bessemer steel ingots was 1,781,533 tons in 1904, 1,910,018 tons in 1903, 1,825,779 tons in 1902 and 1,606,253 tons in 1901. Open hearth steel reached a total of 3,245,346 tons, as compared with 3,124,083 tons in 1903, 3,083,288 tons in 1902 and 3,290,791 tons in 1901. Included in the open hearth steel output of these four years was 662,064 tons of basic steel in 1904, and in the three preceding years 510,809 tons, 406,780 tons and 351,177 tons, each year showing an increase with 1904 the record year.

Referring to the foreign iron and steel trade in 1904 the report speaks of a decrease of 912,543 tons in American imports of iron and steel from the total of 1903, and an increase of 815,010 tons in American exports of iron and steel. This change, it is observed, was so violent as to react with considerable force on the British iron trade. Its effect would probably have been more keenly felt but for the fact that there was a falling off in German iron and steel exports in 1904 of nearly 700,000 tons from the total of the previous year, the decrease being chiefly in the finished material. The report concludes that the American iron trade has again entered upon a strongly competitive career and that the iron and steel manufacturers of Great Britain will continue to feel this competition. Reference is made to the increasing tendency on the part of the smaller and less populous countries to provide for a home iron industry. This movement has been either started or developed in the past year in the Transvaal, Natal, New South Wales and Queensland in the British Empire, while Chile, Brazil and Peru are competing for a pioneer iron industry in South America. Several Danubian principalities have taken iron manufacture in hand, including Bosnia, which now has blast furnaces and steel works in operation. The report says:

The usual experience of new countries traveling in this direction is that they have many unexpected and unprovided for difficulties to encounter, and false starts are not infrequent, leading to serious loss of confidence in the future. This has been the case again and again in British Colonies, especially in Canada, Victoria, New South Wales and New Zealand, and the same result has attended two or three starts of the same kind in India. So also has it been in China and Japan. The latter country, with its usual progressive spirit, has attempted to establish iron works again and again during the last 35 years, but even to-day it can hardly be said to have succeeded in any one case, while a number of promising enterprises have been entirely abandoned during that period because of unsuitable conditions or inadequate experience. All this has happened despite considerable inducements to success in the form of bounties, exclusive contracts, high tariff duties on imports, exemption from taxation and land grants.

#### The Leading Steel Producers.

The position of the four leading steel manufacturing countries in 1904 is shown by the statistics below, giving the production of both open hearth and Bessemer steel in gross tons:

	Bessemer.	Open hearth.
United States.....	7,859,140	5,907,666
United Kingdom.....	1,781,533	3,245,346
Germany .....	5,853,754	2,782,944
France .....	873,381	559,121
	16,367,808	12,495,077

Official records show that in 1880 the total output of steel throughout the world was not more than 4,500,000 tons; in 1903 this figure had increased to 35,500,000 tons. In the same interval the world's output of pig iron increased from about 18,000,000 tons to about 46,500,000 tons. The increase in pig iron was thus about 28,500,000 tons, and in steel about 31,000,000 tons, the difference in increase being largely due to the displacement of puddled iron by steel. The output of puddled iron in Great Britain in 1904 was 936,228 tons, against 950,393 tons in 1903. The falling off was 14,165 tons, while in 1903 it was 37,885 tons from 1902. It is also noted that in Great Britain, as in most countries, the open hearth process is making relatively greater progress than the Bessemer.

The production of iron ore in Great Britain in 1904 was 13,777,282 tons, as compared with 13,715,645 tons in 1903. The imports in 1904 were 6,049,807 and in 1903 6,251,078 tons. Of manganese ores 205,175 tons were imported. The British coal output in 1904 was 232,411,784 tons, against 230,323,391 tons in the previous year.

The estimated production of tin plates in Great Britain in 1904 was 519,000 tons, against 453,000 tons in 1903. The exports in these two years are put respectively at 359,000 and 293,000 tons.

### The National Enameling & Stamping Company.

The annual report of the National Enameling & Stamping Company for the year ending June 30, 1905, shows the following income account as compared with that of the previous year:

	1905.	1904.	Decrease.
Gross profits.....	\$1,460,267	\$1,528,366	\$68,099
Operating and other expenses..	543,040	487,802	*55,238
Net profits.....	\$917,227	\$1,040,564	\$123,337
Interest first mortgage bonds..	89,583	102,075	12,492
Balance .....	\$827,644	\$938,489	\$110,845
Preferred dividends.....	598,262	598,262	....
Balance .....	\$229,382	\$340,227	\$110,845
Common dividends.....	389,795	623,672	233,877
Deficit .....	\$160,413	\$283,445	\$123,032
Written off.....	10,000	54,435	44,435
Deficit .....	\$170,413	\$337,880	\$167,467
Previous balance.....	1,005,751	1,593,631	587,880
Surplus .....	\$835,338	\$1,255,751	\$420,413
Transferred to general reserve..	250,000	250,000	....
P. & L. surplus.....	\$585,338	\$1,005,751	\$420,413

\* Increase.

The balance sheet as of June 30 shows the following comparison:

	Assets.		
	1905.	1904.	Increase.
Real estate, plant, &c....	\$24,029,762	\$23,792,257	\$237,505
Investments .....	*27,500	10,000	17,500
New catalogues.....	....	8,567	†8,567
Mdse., mat'ls and supplies..	3,932,339	3,990,538	†58,199
Accounts and bills receivable	794,372	833,754	†39,382
Advance payments.....	74,042	71,582	2,460
Cash .....	532,883	673,665	†140,782
Total .....	\$29,390,898	\$29,380,363	\$10,535
	Liabilities.		
Capital stock issued.....	\$24,138,400	\$24,138,400	....
First mortgage bonds.....	1,750,000	2,000,000	†\$250,000
Accrued interest.....	29,167	33,333	†4,167
Accounts and bills payable..	1,660,469	1,147,395	513,074
Dividends to stockholders' credits .....	227,524	305,484	†77,960
General reserve account...	1,000,000	750,000	250,000
P. & L. credit.....	585,339	1,005,751	†420,412
Total .....	\$29,390,898	\$29,380,363	\$10,535

\* National Mfg. Company. † Decrease.

The directors have wisely decided to pass the dividend on the common stock for the present. This will enable the working capital to be increased to take care of increasing business.

The production of pig iron in Germany and Luxemburg in the first six months of 1905 was 5,098,588 metric tons, as compared with 4,999,413 metric tons in the first six months of 1904. There was an increase in the production of basic iron from 3,174,401 tons in the first half of 1904 to 3,319,105 in the first half of this year.

## NEWS OF THE WORKS.

## Iron and Steel.

That portion of the plant of the Baldwin Steel Company, Cold Spring, N. Y., which was recently destroyed by fire has been hastily repaired and the company will be in a position next week to make deliveries as usual.

The Alabama Steel & Wire Company is making extensive preparations for the manufacture of wire fencing. Four fencing machines are already installed in its plant at Ensley, Ala., and 21 more have been ordered from the manufacturer.

A violent windstorm on the night of August 5 destroyed the clearing house and a portion of the nail mill of the Kokomo Steel & Wire Company, Kokomo, Ind. The loss, amounting to about \$25,000, was covered by tornado insurance. Work of repairing the damage is being pushed with vigor, and it is expected that repairs will be completed by the end of next week.

The Rockdale Iron Company has closed its furnace at Rockdale, Tenn., and the plant will be given a general repairing. It is stated by the company that the plant will start again by the first of the year.

The Jena-Standard Works of the American Sheet & Tin Plate Company at Bridgeport, Ohio, has resumed operations after a long shutdown.

No. 3 puddle mill at the Lower Works of the Carnegie Steel Company, Youngstown, Ohio, which has been idle since July 1, 1904, will be started this week.

The New Castle Works of the American Sheet & Tin Plate Company, New Castle, Pa., is now in full operation, after being closed down for about a month for extensive repairs. This plant contains 26 sets for tin and terne plates and has a weekly capacity of 20,000 boxes.

The Niles Iron & Sheet Company, Niles, Ohio, maker of iron and steel sheets, is also producing about 1500 stamped seats and other parts of agricultural implements per day. The company is building an addition to its plant and expects to increase the output to 3000 seats per day, having sufficient business to warrant operation of this department until March 1, 1906.

It is stated that the Humbert Works of the American Sheet & Tin Plate Company, at South Connellsville, Pa., will be enlarged from a six-mill to a ten-mill plant. Four more acres of ground adjoining the plant have been bought for the purpose of making enlargements.

The Meyersdale Sheet Steel Company, Meyersdale, Pa., will increase the capacity of its plant and will also build a corrugating plant to make corrugated roofing by its continuous process, taking the material direct from the continuous annealing furnace.

The report that the sheet mills of the Whitaker-Glessner Company, at Martins Ferry, Ohio, which have been closed for about three months on account of labor troubles, would start up this week is untrue. No arrangements are being made looking to the starting of the company's mills at Martin's Ferry or at Wheeling.

## General Machinery.

Work is rapidly being pushed on the new three-story 60 x 80 foot machine shop being erected at Minneapolis for the Washburn-Crosby Company by John Wunder. Most of the machinery has been purchased, including a 10-ton electric traveling crane.

W. B. Knight Machinery Company, St. Louis, Mo., succeeds W. B. Knight & Co., a partnership. The new company, which is incorporated for \$10,000, operates a well equipped plant for the manufacture of patented articles, special machinery and tools.

Brazill, Ind., has bought from the Ingersoll-Sergeant Drill Company, New York, an air compressor to cost \$2150, and six pumps from the Harris Air Pump Company, Indianapolis, Ind., to cost \$1160.

The Beaver Machine Company, Cincinnati, has incorporated for \$7500 capital stock. The company makes Beaver gas and gasoline engines. The following are the officers: N. B. Brant, president; Adolph Zuest, vice-president; J. H. Pillings, secretary and treasurer, who, with B. S. Oppenheimer and M. R. Brant, constitute the directory.

E. E. Linthicum is general manager of a new industry which is being founded at Anniston, Ala., to be known as the American Cast Iron Pipe Company. The purpose of the company is said to be to erect a plant to cost more than \$200,000 and which will have a total daily capacity of 150 tons of cast pipe of all standard diameters.

The Stroud-Humphrey Mfg. Company has recently purchased and remodeled the old plant of the Star Iron Works at Hastings, Minn., and will use the plant for the manufacture of the Stroud-Humphrey gasoline engine and for the erection of motor cars to be used on interurban roads and spurs of steam roads. The gasoline engine is made for marine as well as for stationary purposes. The company purposes the extension of the plant for the construction of the hulls of vessels, so that it can make river craft complete instead of furnishing only the mechanical equipment, as at present.

The Combination Ladder Company and Rhode Island Coupling

Company, Providence, R. I., is constructing a new building 60 x 150 feet in size to be used in building chemical fire engines and other fire apparatus. The extension will be known as Shop No. 4.

The General Railroad Signal Company, Buffalo, has let contracts for extensions at both its Buffalo and Rochester plants. The company has placed all its orders for the necessary additional machine equipment.

The Electric Vehicle Company has filed plans for the erection of a building 80 x 250 feet on Park avenue, New York. The structure will contain a repair department and an extension of the company's blacksmith shop.

The Midgley Mfg. Company, Columbus, Ohio, is erecting a new plant and has placed orders for a large circular base drop hammer and especially designed bulldozers, besides orders for universal milling machines, lathes and boring mills.

The South Bend Machine Mfg. Company, South Bend, Ind., has been incorporated with \$50,000 capital stock. The directors are Daniel McHenry, George Brown, Henry H. Hutson, Elmer J. Martin, William F. Koeller, Stuart MacKibbin and Shirley Reynolds.

The Berlin Machine Works, Beloit, Wis., manufacturer of wood working machinery, has recently completed a substantial addition to its machine shops and now has in process of construction a three-story fire proof pattern storage house 72 x 132 feet. The entire building will be used for storing patterns, with the exception of two large rooms on the first floor, which are to be given over to the employees as dining and smoking rooms. The rooms will be equipped with individual lockers, a large wash-room, tables, &c., for the comfort and convenience of the men. The business of this company has grown so rapidly during the past few years that its present office facilities are entirely inadequate and a new four-story brick office building will be erected in the near future.

The Meyer Machine Company, Petersburg, Ind., has purchased the implement business of Paterson & Miley and will enlarge its plant.

A. F. Baumgarten & Brother, Farmers' Bank Building, Pittsburgh, are in the market for a second-hand corrugating press and one stand of sheet mill housings with 6-foot spread.

The Youngstown Sheet & Tube Company, which will build a Bessemer steel plant at Youngstown, Ohio, has placed a contract with the William Tod Company of that city for the Bessemer blowing engines and the reversing engines.

The Strickland Brothers Foundry & Machine Company, Tuscaloosa, Ala., has received an order from Cuba for 100 tons of sugar cane mills. The machines will probably be shipped direct from Tuscaloosa to Cuba via the Warrior River and the Gulf of Mexico.

## Power Plant Equipment.

Fitzger Brewing Company, Duluth, Minn., has placed a contract with McLeod & Smith of the same city for the construction of a boiler house. The company has already purchased three 66-inch x 18-foot tubular boilers as well as coal and ash handling apparatus.

A company known as the Pea River Power Company has been incorporated to build an electric railway between Elba and Troy, Ala., and to supply light and power to the adjacent towns. The principal office of the company will be at Troy. Charles Henderson, H. D. Boyd and J. M. Garrett are the officers of the company.

The city of Tacoma, Wash., is advertising for bids on a steam power plant for generating electricity, the power ranging between 5000 and 10,000 horse-power. The city has already advertised for bids on a water power equipment and the decision will be reached after comparing the two series of bids.

The Edwardsville & Granite City Railroad Company has practically completed its line between Edwardsville and Mitchell, Ill. Power will be furnished by the Alton, Granite & St. Louis Traction Company, Alton, Ill.

The Jasonville Electric Company, Jasonville, Ind., will build an electric light plant in that city.

The Haberkorn Engine Company, Fort Wayne, Ind., has increased its capital stock from \$50,000 to \$100,000.

The Hawks Electric Company, capital stock \$36,500, and the Hawks Water Power Company, capital stock \$30,100, have been incorporated at Goshen, Ind., by Frank E. Hawks, Edward W. Hawks and Owen C. Cover.

The Newcastle-Indianapolis Construction Company has been incorporated at Indianapolis, Ind., with \$50,000 capital stock to construct the Indianapolis, Newcastle & Toledo Electric Railway. The incorporators are Le Grand Marvin, Frankfort, Ind.; F. B. Hernly, Newcastle, Ind., and W. B. Oakes, Fred Cline and George H. Brannon of Indianapolis. The principal office of the company will be in the Traction Terminal Building, Indianapolis.

The Fulton Company, Knoxville, Tenn., has secured a contract to furnish its entire output of gauges for boilers and steam radiators to the American Radiator Company, Chicago.

The Republic Iron & Steel Company has purchased from the McNeil Boiler Company, Akron, Ohio, two 250 horse-power Cook water tube boilers for its plant at Toledo, Ohio.

### Foundries.

The McIntosh Foundry & Machine Company, Monmouth, Ill., has been incorporated by A. D. McIntosh, W. A. Miles and J. F. Duffin. This company is the successor to the business formerly operated by the Messrs. McIntosh, the two last named incorporators being newly admitted to the firm.

The Central Foundry Company has been organized at Milwaukee with a capital stock of \$10,000. Daniel Walsh, Edward Smith and Alex. E. Martin are incorporators. The company secured for its plant the old Clinton-Burnham Foundry at 705-723 Park street, which has been closed for the past two years, and commenced active operation July 27. The proprietors have been for some time operating a smaller foundry on Howell avenue, under the name of the Town of Lake Foundry, and will continue to conduct both plants.

The first soil pipe made by the Coosa Pipe & Foundry Company, Gadsden, Ala., was finished August 3, and the test was a success in every way. The plant has a daily capacity of 50 tons. It is understood that the company intends to continue the extension of the plant so as to consume the entire output of an affiliated blast furnace.

An addition 23 x 82 feet in size is being made to the brass foundry of Edro Richardson, 318 North Holliday street, Baltimore, Md. The structure will be four stories high and will provide for brass finishing and pattern storage. It will be completed about November 1, 1905.

The Nordyke & Marmion Company, Indianapolis, Ind., manufacturer of flour mill machinery and automobiles, will build an addition to its foundry 104 x 340 feet.

It has been determined to remove the Bridgeport plant of the United States Cast Iron Pipe & Foundry Company to Chattanooga, Tenn. The work of removal will begin in the early fall. D. Giles, resident manager of the company, states that the plans for removal have already been formulated. The Bridgeport plant will be located on a tract of ground adjacent to the present plant of the United States Cast Iron Pipe & Foundry Company and will simply be added to and operated in connection with the local plant.

The plant of the Vulcan Foundry & Machine Company, at New Castle, Pa., which has been idle for some time, will probably start this week. The company makes ingot molds and rolling mill machinery.

The Dayton Malleable Iron Company, Dayton, Ohio, is erecting a reinforced concrete building approximately 90 x 300 feet and three stories high on the site of buildings recently destroyed by fire. No machinery will be required.

An application has been made for a charter for the W. C. Ellis & Sons Iron Works, Memphis, Tenn. The capital stock is placed at \$30,000.

### Bridges and Buildings.

The Midland Steel Company, Pittsburgh, Pa., has placed a contract with William B. Scaife & Sons Company, Pittsburgh, Pa., for six steel frame buildings and crane runways. A very large tonnage of structural shapes and plates will be required.

The Vincennes Bridge Company, Vincennes, Ind., has been awarded the contract for a 180-foot bridge in Gallatin County, Ill., and for a 120-foot bridge in Saline County.

Negotiations are on between the Commercial Club of Richmond, Ind., and the Bridge City Construction Company, Logansport, Ind., for the removal of the latter and the building of a \$75,000 plant at Richmond. W. E. Scott is secretary of the Commercial Club.

The Block Bridge & Culvert Company, Indianapolis, Ind., secured from the Madison County Commissioners a contract for five small bridges for \$8000.

The Fort Smith & Van Buren Bridge & Traction Company has been organized for the purpose of constructing a steel toll bridge across the Arkansas River at Fort Smith, Ark. The bridge will cost \$200,000 and will accommodate the Fort Smith & Van Buren Light & Traction Company's trolley line as well as being a wagon and foot bridge.

The Pacific Construction Company, San Francisco, Cal., has been awarded a contract by the Commissioners of Madera and Fresno counties for the construction of a bridge to be known as the Jenny Lind Bridge. This bridge is to be a reinforced concrete structure, 780 feet long, consisting of 12 spans, the consideration being \$49,583. Bids range from this figure up to nearly \$58,000, one bid, that of the Minneapolis Steel Machine Company, being \$43,300, but this bid was rejected because it was not accompanied by the required certified check.

Charles G. Sheely, Denver, Col., has been awarded a contract for the erection of a steel bridge 125 feet long over the Purgatory River at Sopris, Las Animas County, by T. W. Jaycox, State Engineer.

R. R. Moorman & Co., Lafayette, Ind., secured a contract for seven bridges in Hamilton County, Ind., the aggregate cost being \$3421.

The Joliet Bridge Company, Joliet, Ill., was awarded the contract for a steel bridge in Mill street at Saranac, Mich., for \$1199.

Herman Timmerman, Ontario, Wis., has the contract for a bridge at Sparta, Wis., to cost \$1950.

The Chicago Ornamental Iron Company, Chicago, is adding to its plant a 71 x 90 foot extension to its two-story fitting department and a 50 x 90 foot extension to its foundry. No new tools will be required immediately as the result of these extensions.

### Fires.

The recent fire in the dry dock and shipyard of the Burt-Mitchell Company, Jersey City, N. J., destroyed only the south wall of the company's machine shop, and it is stated that the concern will not require any machinery, as the damage was mostly by water and none of the machinery equipments was spoiled.

The United States Blower Pipe & Hydraulic Works, South Seattle, Wash., was destroyed by fire recently, and a large amount of new machinery was wrecked by the flames, as well as some 2000 feet of 15-inch water pipe which was awaiting delivery.

The Lebanon Chain Works, Lebanon, Pa., is erecting a new building 120 x 200 feet in size to enlarge its factory space. It is expected that the building will be completed and ready for operation in the fall. It is stated that the greater portion of the machine equipment has been purchased.

Kellogg-McCrum-Howell Company, manufacturer of boilers and radiators, has decided to rebuild the enamel ware plant recently destroyed by fire at Blairsville. The company has not entirely decided as to whether it will use the site of the destroyed structure or build elsewhere.

The plant of the Schumaker Milling Company, Hammond, Ind., recently destroyed by fire, will be rebuilt.

The structural steel and iron plant of the Bartlett Steel Company, Joplin, Mo., was destroyed by fire on the morning of August 3, entailing a loss of \$15,000 on buildings and machinery. The company is preparing to build at once, and hopes to be ready for business on or before September 1. The machinery equipment was destroyed by the flames and new machines are being purchased as rapidly as possible.

The plant of the Star Brick Company at Dickerson Run, Pa., was destroyed by fire last week, causing a reported loss of \$25,000.

The Simmons Pipe Bending Works at Newark, N. J., was destroyed by fire on Sunday night, causing a loss of \$50,000. The company has made no plans for rebuilding as yet, but is taking care of the work on hand at other plants.

### Hardware.

The Clipper Lawn Mower Company, Dixon, Ill., has recently been incorporated for \$50,000, and will erect a plant at Dixon for the manufacture of the Clipper lawn mower, a machine that has reciprocating knives moving on a cutter bar inside of forged guards, very similar to the cutting apparatus of a horse mower. R. K. Ortt is the prime mover in the new company.

The Fort Smith Wagon Company, Fort Smith, Ark., has increased its capitalization from \$200,000 to \$300,000, the increased capitalization representing the natural growth of the company. C. E. Speer is president and W. H. Johnson secretary-treasurer.

The Goshen Buggy Top Company, Goshen, Ind., has recently purchased the plant of the Goshen Woolen Mfg. Company, and is now fitting out the plant for its occupancy.

The Meyer Machine Company, Petersburg, Ind., successor to the Stafford-Meyer Machine Company, has just absorbed the implement business of Paterson & Miley at Petersburg, and is contemplating important enlargements in its plant, for the manufacture of emery stands, grindstones, steel pitless scales and other specialties.

The Delphos Can Company, Delphos, Ohio, has doubled its capacity and is now turning out three carloads of cans per day, besides other specialties. The company has contracted with the Niagara Machine & Tool Company for over \$5000 worth of machinery to manufacture all kinds of heavy tinware and anti-rust goods.

M. C. Henley, Richmond, Ind., manufacturer of the well-known Challenge roller skates, reports that the demand for roller skates is constantly on the increase. Mr. Henley has just received an order for 500 pairs for a new rink opened at Toledo, Ohio, and is negotiating with other rinks for several large orders.

The Western Steel Gate Company, formerly of Two Rivers, Wis., has moved its plant and main offices to Green Bay, where it has acquired the large machine shop and foundry of A. M. Duncan, the change of base having been made August 1. The firm's growing business in steel gates and Western post hole diggers made it necessary that better manufacturing facilities and shipping accommodations be secured than were offered by Two Rivers. The Duncan foundry and machine shop was established in 1868, and is referred to as one of the best equipped in northern Wisconsin. Both gas and steam engines are manufactured and much railroad casting is done by the plant. A new building is being erected for use as a steel gate and post hole digger factory, and considerable new machinery will be installed. Although the Western right of way railroad gate and the Western digger have been on the market but little over a year the company has been very successful in introducing them to the implement and hardware trade. For the present A. M. Duncan, the former manager and owner, will retire from business.

## Miscellaneous.

Two independent telephone companies—the West Shore Telephone & Telegraph Company and the Milwaukee Home Telephone Company—have made application to the Common Council of Milwaukee for an ordinance permitting them to construct and operate telephone lines in that city.

Perkinson & Brown, sheet metal window and cornice manufacturers, are occupying their new plant at 113 North Lincoln street, Chicago, which gives them a much larger capacity than their old plant at 749 West Lake street, as well as offering greatly improved shipping facilities.

Sylvester Greusel, Battle Creek, Mich., has established a branch of his machinery and old metal business at Hastings, Mich., known as the Hastings Metal & Machinery Company.

Joseph Honhorst & Co., Cincinnati, Ohio, are erecting a two-story brick factory at 1016 and 1018 Sixth street for the manufacture of stacks, tanks and sheet steel articles. On the completion of the new plant the old shop on Pearl street will be abandoned. All machinery and tools for the new shops have been purchased.

The Midland Cold Storage Company is erecting in St. Paul, Minn., a nine-story fire proof cold storage warehouse, which will be operated on its completion by A. Booth & Co., under the management of Charles G. Case. The matter of power equipment and machinery is in the hands of the Starr Engineering Company, 258 Broadway, New York, and the erection of the building is in the hands of Long & Long, 830 Hennepin Building, Minneapolis.

Giese Brothers Mfg. Company contemplates the erection and equipment of a manufacturing plant at Hastings, Neb. The company will build tanks of all kinds and make a specialty of the manufacture of wind mills. It will be in the market for a 100 horse-power boiler and a 40 horse-power engine. Most of the other machinery required has already been purchased. The present address of the firm is Holstein, Neb.

A company known as the Mexican Aluminum Mfg. Company was organized in the City of Mexico July 29. The company has secured concessions from the Mexican Government exempting it from import taxes on all the machinery and material for the construction of its factory, as well as from local taxes. The following Board of Directors was elected: A. L. Van Antwerp, president; W. E. Herrmann, vice-president; H. C. Head, treasurer; J. Madrid Terres, secretary; W. J. De Gress, Lic. Manuel Septien y Coslo and Lic. Aquiles Elorduy, directors. A plant will be erected and equipped in or near the City of Mexico.

The International Nonexplosive Tank Company has been organized to manufacture tubes which if inserted in cans or tanks containing gasoline, benzine or naphtha, it is claimed, will make them nonexplosive. The company has in operation a factory at 209 Centre street, New York and its officers are: President, William O'Gorman, Jr.; vice-president, Louis Kessler; secretary, Charles Frankensatnyne, and treasurer, Philip J. Levi.

The W. L. Cornelius Company has been incorporated at Westfield, Ind., with \$50,000 capital stock to manufacture metal, wooden and paper boxes.

The Lindenschmidt Company has been incorporated at Evansville, Ind., with \$10,000 capital stock to manufacture architectural iron work. The incorporators are Henry, Edward C. and J. B. Lindenschmidt.

The United States Chain Works, Maxwell, Ind., has resumed operations, beginning on an order for 40,000 feet of brake chain for the Pullman Car Company. Plans are under contemplation for increasing the plant from 125-ton to 150-ton capacity.

The Haynes-Apperson Company, Kokomo, Ind., has increased its capital stock \$100,000. The concern manufactures automobiles.

The Town Board of Hope, Ind., is contemplating the installation of a water works system.

The City Council of Muncie, Ind., is asking bids for the construction of a water works plant or the purchase of the one now in operation.

Charles G. Gardner, receiver for the Washington (Ind.) Water Works Company, has been instructed by the court to ask for bids for a \$50,000 filter plant.

The Trustees of the Southern Hospital for the Insane, Evansville, Ind., have awarded the contract for a water supply system to the Chicago Bridge & Iron Works, and the contract for the water softening system to the Kennicott Water Softening Company of Chicago.

The Pittsburgh Portland Cement Company has been organized at Pittsburgh, with a minimum capital of \$50,000, to erect a cement plant on a site about 26 miles from the city.

The German-American Portland Cement Works, La Salle, Ill., has increased its capital stock from \$450,000 to \$600,000, the added capital, together with \$150,000 mortgage bonds, to be devoted to enlarging the works to a point where the output will be, practically doubled. All machinery has been provided for.

The Southern Engine & Boiler Works, Jackson, Tenn., are working on a new incinerating machine that promises to play a part in future sanitary and garbage cremating history.

## The Broderick &amp; Bascom Exhibit at the Portland Fair.

The exhibit of the Broderick & Bascom Rope Company, St. Louis, Mo., in the Manufacturers Building at the Lewis and Clark Exposition is attracting wide attention by reason of its unique features and ingenious yet artistic arrangement.

The central figure is the large spool of cable, 1½ inches in diameter, 32,000 feet long, weighing 137,000 pounds, and having a breaking strain of 175,000 pounds. This cable was made for the Metropolitan Street Railway, New York, and is the heaviest and longest cable made in one piece for street railway service. It required 56 horses to haul it through the street. The spool is 10 feet in diameter and 8 feet wide, is mounted on a turntable and revolves. On the outside flanges of the spool are two 7-foot diameter revolving disks, containing all of the various sizes and styles of rope made by the Broderick & Bascom Rope Company. Around the spool is a 20-foot diameter circular track, on which is run a miniature spool of cable on a model of the company's Jumbo steel wagon, drawn by 30 miniature horses, all mounted in a complete manner, running in opposite directions to the cable and spool. There is also a train load of wire rope supplies for the logging country, drawn by a miniature locomotive. On the outside of the circular track is a miniature aerial tramway, showing the manner in which ore, timber, &c., are transported in midair. The whole effect is a practical illustration of what is and can be done with wire rope.

In the rear are two cabinet cases containing 5-inch diameter steel ropes, capable of sustaining 2,500,000 pounds. These ropes revolve, presenting a striking appearance. Above the cases are electric signs which flash the name "Power Rope" in letters of varied hues. Throughout the exhibit are coils of Power rope (yellow strand), noted for its strength and lasting qualities.

An interesting feature of the exhibit is the carving set made entirely from Power steel rope. To one not versed in rope making it would seem impossible to weld from the wires of a wire rope articles of utility. The knife is 3 feet long, with a perfect rope handle; the fork and steel are in proportion. The set is perfectly made and highly finished in silver.

In the rear and on top of the exhibit is a painting, 30 feet long by 12 feet high, representing a typical logging scene in the redwood country of California.

In front of the exhibit are pyramids of wire rope paper weights set on a base supported by a cable 3 feet in diameter. The fence surrounding the exhibit is made of wire rope, with circular design, and having a top finish with Broderick & Bascom's trademark paper weights.

The entire exhibit was constructed at the company's factory at St. Louis, Mo. It was designed and its construction supervised by the company's general superintendent and mechanical engineer, E. P. Frederick.

The ninth annual convention of the National Founders' Association will be held in New York on Wednesday and Thursday, November 15 and 16, 1905. As is customary, the Administrative Council will meet on the Monday and Tuesday preceding the opening of the convention.

The electrification of suburban railroad lines about New York is expected to make important advances in the near future. The Long Island Railroad has over 70 miles of suburban track electrified, and is planning to equip the Port Washington branch with electricity.

A meeting of the shafting manufacturers was recently held in New York. While prices were reaffirmed, a disposition to deviate is occasionally observed, although no necessity appears to warrant such action through lack of demand.

William V. Threlfall has been made the works manager of the Chapman Valve Mfg. Company, Indian Orchard, Mass.

## The Iron and Metal Trades

In Pig Iron the week has been rather quiet, taking the country as a whole. The purchases of the United States Steel Corporation will probably not be made until early in September. In the East there has been a further moderate movement in Basic Pig, one interest taking 10,000 tons at a concession, while another buyer took 4000 tons in addition to previous purchases of 8000 tons. In the Pittsburgh district a leading maker of Cast Iron Pipe has bought 10,000 tons of Gray Forge Pig, while in the Chicago district one foundry is in the market for 15,000 tons.

In the East there has been a little wavering as to prices, one large producing company offering Iron at somewhat lower figures.

Steel Billets are scarce and the situation is rather acute, particularly in the Chicago district. At some points accessible to tidewater small lots of foreign Billets have been sold.

It is reported that the Canadian Government has suspended for four months the antidumping clause so far as Steel Billets are concerned, the fact that the two leading Canadian Steel works are engaged on Rails making it difficult to obtain Canadian Steel for the rerolling industries. Our own Steel works are so busy, however, that they cannot take advantage of the situation.

Orders for Steel Rails for 1905 delivery continue to roll in to the works. The Harriman roads have just placed 75,000 tons with the Steel Corporation. It is not known whether this system accepted offers for Pacific Coast delivery made by works in Eastern Germany which are not associated with the other German mills.

In the Structural trade the event of the week has been the award of the contract for the new Manhattan Bridge to the Pennsylvania Steel Company. It calls for the enormous quantity of 43,937 tons of material.

The pressure upon the Structural mills is exceedingly heavy and the payment of premiums for prompt delivery and the importing of occasional lots of foreign Shapes seem to foreshadow an upward movement.

It has developed that in all eight boats were ordered from Delaware shipyards. The Shapes went to an Eastern Pennsylvania mill, while the Plates were divided between Pittsburgh and central and eastern Pennsylvania works.

During the week car builders have gathered in additional work. It is expected that the order for 12,000 Steel cars for the Pennsylvania lines west of Pittsburgh will be put in hand either this week or early next week.

In nearly all the heavy lines the tonnage on the books is enormous and further work cannot be taken in many instances from sheer inability to meet even distant deliveries.

In the lighter lines the most important development is that a heavy buying movement has set in all along the Wire trade. The tonnage in Sheets, too, is picking up, but the Merchant Pipe trade is afflicted with sharp cutting of prices.

In Bars the agricultural implement makers and other consumers who contract for their requirements for six months and a year ahead have now pretty well covered. The aggregate tonnage has been very large.

## A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,  
Declines in Italics.

At date, one week, one month and one year previous.

Aug. 16, Aug. 9, July 19, Aug. 17  
1905. 1905. 1905. 1904.

### PIG IRON:

Foundry Pig No. 2, Standard,				
Philadelphia .....	\$16.25	\$16.25	\$16.25	\$14.25
Foundry Pig No. 2, Southern,				
Cincinnati .....	14.50	14.50	13.75	12.00
Foundry Pig No. 2, Local, Chicago	16.25	16.25	16.25	13.25
Bessemer Pig, Pittsburgh .....	15.10	15.10	14.85	12.85
Gray Forge, Pittsburgh .....	14.40	14.40	14.50	12.00
Lake Superior Charcoal, Chicago	17.00	17.00	16.50	15.00

### BILLETS, RAILS, &c.:

Steel Billets, Pittsburgh .....	24.00	24.00	23.00	23.00
Forging Billets, Pittsburgh .....	26.00	26.00	25.00	....
Steel Billets, Philadelphia .....	26.50	26.50	26.00	24.00
Steel Billets, Chicago .....	28.00	28.00	28.00	22.00
Wire Rods, Pittsburgh .....	32.50	32.50	32.00	28.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

### OLD MATERIAL:

O. Steel Rails, Chicago .....	14.00	14.00	13.50	10.50
O. Steel Rails, Philadelphia .....	16.00	16.00	16.00	11.75
O. Iron Rails, Chicago .....	19.00	19.00	17.75	15.50
O. Iron Rails, Philadelphia .....	20.00	19.50	17.50	14.00
O. Car Wheels, Chicago .....	14.75	14.75	14.25	11.50
O. Car Wheels, Philadelphia .....	15.00	15.00	14.00	11.50
Heavy Steel Scrap, Pittsburgh ..	15.00	15.00	14.00	11.50
Heavy Steel Scrap, Chicago .....	13.00	13.00	13.00	9.25

### FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia.	1.63½	1.63½	1.63½	1.48½
Common Iron Bars, Chicago .....	1.55	1.55	1.50	1.35
Common Iron Bars, Pittsburgh ..	1.60	1.60	1.55	1.30
Steel Bars, Tidewater .....	1.64½	1.64½	1.64½	1.49½
Steel Bars, Pittsburgh .....	1.50	1.50	1.50	1.35
Tank Plates, Tidewater .....	1.74½	1.74½	1.74½	1.74½
Tank Plates, Pittsburgh .....	1.60	1.60	1.60	1.60
Beams, Tidewater .....	1.74½	1.74½	1.74½	1.74½
Beams, Pittsburgh .....	1.60	1.60	1.60	1.60
Angles, Tidewater .....	1.74½	1.74½	1.74½	1.74½
Angles, Pittsburgh .....	1.60	1.60	1.60	1.60
Skelp, Grooved Iron, Pittsburgh ..	1.50	1.50	1.50	1.32½
Skelp, Sheared Iron, Pittsburgh ..	1.55	1.55	1.55	1.32½
Sheets, No. 27, Pittsburgh .....	2.20	2.20	2.15	2.00
Barb Wire, f.o.b. Pittsburgh .....	2.25	2.25	2.25	2.05
Wire Nails, f.o.b. Pittsburgh .....	1.80	1.80	1.80	1.60
Cut Nails, Mill .....	1.65	1.65	1.80	1.65

### METALS:

Copper, New York .....	16.00	15.75	15.00	12.50
Spelter, St. Louis .....	5.65	5.65	5.25	4.75
Lead, New York .....	4.60	4.60	4.55	4.10
Lead, St. Louis .....	4.60	4.60	4.50	4.00
Tin, New York .....	32.62½	32.50	31.75	26.75
Antimony, Hallett, New York .....	14.50	14.50	13.00	7.00
Nickel, New York .....	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer,				
100 pounds, New York .....	3.74	3.74	3.74	3.49

## Chicago.

FISHER BUILDING, August 16, 1905.—(By Telegraph.)

A large volume of business is being transacted in nearly all lines. The inquiry for Pig Iron is better than a week ago, including nearly 15,000 tons of Foundry Iron for one buyer and a good general demand for both Foundry and Malleable. A St. Louis interest last week purchased about 20,000 tons of basic from an Alabama producer at \$13, Birmingham. Rogers, Brown & Co. have decided to build a new furnace in the South Chicago territory. Whether it will be in the shape of an addition to the present two stacks of the Iroquois plant or a separate plant does not yet appear. Iron prices, both Northern and Southern, are firm, the weakness in Ohio being relieved by the semiofficial rumor that the United States Steel Corporation will be a buyer in September. In finished material the most important happening is another cut in Pipe prices, made in the shape of rebates by leading producers, met by flat quotations on the part of the others. Wire products have also reached a point where the special terms of large makers to heavy jobbers are met by equal prices to all jobbers and railroads by competitors. Sheet Steel, the third weak member of the trio, shows some sentimental improvement, though as yet no actual advance in price. Plates and Structural Steel, Heavy and Light Rails and Track Supplies, Billets, Bars and Boiler Tubes are all exceedingly strong, with mills naming later and later deliveries. Scrap shows no sign of weakness. Metals are steady, with Spelter slightly higher. Coke is stronger.

**Pig Iron.**—Rogers, Brown & Co. have decided to erect a new furnace in the South Chicago district. Details are lacking as to the size or character of the plant and whether it will be separate from or included in the present Iroquois furnaces. Rumor has it that it may be a Basic plant and that it is not impossible that Steel works may be part of

the plan, but no confirmation is at hand. Inquiry for Pig Iron is excellent and the sales of the past week have been larger than for any week since the early July advances. A large St. Louis industry bought about 20,000 tons of Alabama Basic last week at \$13, furnace, or a full dollar above the Birmingham maximum price for No. 2 Foundry. Neither of the two Chicago buyers of Basic has been in the market recently, as far as can be learned. Local furnaces are practically sold up for some months to come, some of them to the end of the year, giving Ohio producers an opportunity to secure some business in this market. The growing impression that the United States Steel Corporation will be a buyer of Iron in September is also strengthening the market, particularly among Ohio furnaces. We quote, f.o.b. Chicago:

Lake Superior Charcoal.....	\$17.00 to \$17.50
Northern Coke Foundry, No. 1.....	16.75 to 17.00
Northern Coke Foundry, No. 2.....	16.25 to 16.50
Northern Coke Foundry, No. 3.....	15.75 to 16.00
Northern Scotch, No. 1.....	17.25 to 17.50
Ohio Strong Softeners, No. 1.....	16.30 to 16.80
Ohio Strong Softeners, No. 2.....	15.80 to 16.30
Southern Silvery, 4 to 6 per cent. Silicon.....	16.65 to 17.65
Southern Coke, No. 1.....	15.90 to 16.15
Southern Coke, No. 2.....	15.40 to 15.65
Southern Coke, No. 3.....	14.65 to 15.15
Southern Coke, No. 4.....	14.40 to 14.90
Southern Coke, No. 1 Soft.....	15.90 to 16.15
Southern Coke, No. 2 Soft.....	15.40 to 15.65
Southern Gray Forge.....	14.15 to 14.65
Southern Mottled and White.....	13.90 to 14.40
Malleable Bessemer.....	16.50 to 16.75
Standard Bessemer.....	13.55 to 13.80
Jackson Co. and Ky. Silvery, 6 to 8 % Silicon.....	17.70
Jackson Co. and Ky. Silvery, 7 to 9 % Silicon.....	19.30
Jackson Co. and Ky. Silvery, 8 to 10 % Silicon.....	20.30
Alabama Basic.....	13.65

**Sheets.**—A perceptibly better tone pervades the market and inquiry is improving; prices, however, are but little better. We quote: Blue Annealed, Nos. 9 and 10, 1.81½¢. to 1.86½¢.; Box Annealed, Nos. 18 and 20, 2.16½¢. to 2.21½¢.; No. 27, 2.31½¢. to 2.36½¢.; No. 28, 2.41½¢. to 2.46½¢., with the customary differentials between gauges. Store prices are based on a minimum of 2.10¢. for No. 10 Blue Annealed, 2.50¢. for Nos. 18 and 20 Box Annealed, 2.65¢. for No. 27 Box Annealed and 2.75¢. for No. 28 Box Annealed. Galvanized Sheets are quoted in car lots from mill at about the following prices, some mills asking a little more and some offering at \$1 a ton less: No. 10, 2.41½¢. to 2.46½¢.; Nos. 17 to 21, 2.81½¢. to 2.86½¢.; No. 27, 3.26½¢. to 3.31½¢.; No. 28, 3.46½¢. to 3.56½¢. Store prices on Galvanized Sheets are as follows: Nos. 10, 12 and 14 are selling at from 3¢. to 3.10¢., Nos. 22 and 24 at from 3.05¢. to 3.15¢., No. 27 at from 3.50¢. to 3.65¢. and No. 28 at from 3.70¢. to 3.95¢., with intermediate gauges in proportion and with customary differentials for widths and lengths.

**Merchant Pipe.**—The warfare between the leading producer and the independent mills has reached a point where prices quoted are lower than they have been for five years, and lower than cost of production for mills that have to pay present prices for Skelp. Consumers can buy Black Steel Pipe in single car lots from mills of base sizes, ¾ to 6 inches, at 77.35 per cent. discount, f.o.b. Chicago, and larger lots to consumers would command still better discounts, while jobbers are quoting their usual differentials. Galvanized Pipe still maintains its ten points premium over Black and Iron Pipe three points over Steel. Prices from Chicago stores average 76 per cent. discount on Black Steel for small lots, with concessions on round lots, and the usual differentials for the Galvanized and for Iron.

**Boiler Tubes.**—The market is strong and prices are well maintained. The following are official discounts, f.o.b. Chicago, in car lots: Steel Tubes, 62.35; Iron, 51.35; Seamless, 50.85. Store prices are nominally unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1½ inches.....	40	35	42½
1½ to 2¼ inches.....	50	35	35
2½ inches.....	52½	35	30
2½ to 5 inches.....	60	47½	42½
6 inches and larger.....	50	35	..

**Cast Iron Pipe.**—The following prices represent figures that will be quoted in car lots and greater, large tonnages, of course, securing lower prices: Water Pipe, 4-inch, \$29; 6, 8 and 10 inch, \$28; 12-inch and larger, \$27, per net ton, with \$1 extra charged for Gas Pipe. Large tonnages bought by municipalities on a competitive basis bring out considerably lower prices.

**Coke.**—The market shows a sensible improvement. Connellsville Foundry Coke and Milwaukee Solvay are both held at \$5.15, Chicago, and Wise County operations are strong at \$2.50, ovens, on Foundry quality, or \$4.75, Chicago.

(By Mail.)

**Billets.**—With a large independent Rail mill attempting to purchase Billets, and all the Steel mills using all the Billets they can make at home, there is great statistical strength to this commodity. Locally, Forging Billets are hard to get, even in large quantities on contract, at \$28, and

the price runs from there up to \$32. Sheet Bars, in spite of the low price of Sheets, are proportionately high.

**Rails and Track Supplies.**—There are inquiries from Western roads on the desks of local sellers aggregating over 150,000 tons of Standard Section Rails, and also an unusually large tonnage of Light Sections. About 15,000 tons were closed for a Pittsburgh interest during the week under review. Mills are nearly all sold up for the balance of this year, though some orders are being placed nominally for December delivery in order to get early 1906 shipment. We quote: Standard Sections, \$28, f.o.b. mill, in 500-ton lots or greater; Light Sections, down to 12-lb., \$25 to \$28, f.o.b. mill; 10-lb., \$29; 8-lb., \$30. Angle Bars are unchanged at 1.40¢. to 1.50¢. Spikes are stronger at 1.75¢. to 1.80¢. Track Bolts are quoted at 2.40¢. to 2.50¢., base, Square Nuts. Store prices on Track Supplies range from 15¢. to 25¢. per 100 lbs. above car lot mill prices.

**Structural Material.**—A good tonnage is being booked by mills for delivery next spring, as buyers are becoming discouraged in efforts to secure materials in time for erection before cold weather. Large stocks in local stores are becoming depleted by the heavy demand. Official prices for delivery from mill, f.o.b. Chicago, in car lots, are as follows: Beams and Channels, 3 to 15 inches, inclusive, 1.76½¢.; Angles, 3 to 6 inches, ¼-inch and heavier, 1.76½¢.; Angles, larger than 6 inches on one or both legs, 1.86½¢.; Beams, larger than 15 inches, 1.86½¢.; Zees, 3 inches and over, 1.76½¢.; Tees, 3 inches and over, 1.81½¢., in addition to the usual extras for cutting to extra lengths, punching, coping, bending or other shop work. Store prices on Angles, Beams and Channels range from 2¢. to 3¢., according to quantity on hand in store or obtainable from mill.

**Plates.**—Demand is unabated and prices are well maintained, except on the lighter gauges, as follows: Tank quality, ¼-inch and heavier, wider than 14 and up to 100 inches wide, inclusive, car lots, Chicago, 1.76½¢.; 3-16 inch, 1.86½¢.; Nos. 7 and 8 gauge, 1.91½¢.; No. 9, 2.01½¢.; Sheared and Universal Mill Plates, Tank quality, 6¼ to 14 inches, inclusive, 10¢. below these prices; Flange quality in widths up to 100 inches, 1.86½¢., base, for ¼-inch and heavier, with the same advances for lighter weights; Sketch Plates, Tank quality, 1.86½¢.; Flange quality, 1.96½¢. Store prices on Plates are as follows: Tank Plate, ¼-inch and heavier, up to 72 inches wide, 2¢. to 2.10¢.; from 72 to 96 inches wide, 2.10¢. to 2.20¢.; 3-16 inch up to 60 inches wide, 2.10¢. to 2.20¢.; 72 inches wide, 2.35¢. to 2.45¢.; No. 8 up to 60 inches wide, 2.15¢. to 2.25¢.; Flange quality, 25¢. extra.

**Bars.**—All the larger implement firms and large Bar users generally have closed their contracts for deliveries up to January 1 or July 1, 1906, as the case may be, and mills of the leading producers are so far behind their orders that January delivery for present specifications is often named on Steel Bars. Iron Bars are also in good demand. We quote Iron Bars, 1.55¢.; Steel Bars, 1.66½¢., both half extras; Hoops, 1.81½¢. rates, full extras; Soft Steel Angles and Shapes, 1.76½¢., half extras, and Hard Steel Angles and Bars at about 10¢. below the price of Soft Steel. In store prices Steel Bars and Bands are being held at a minimum of 1.85¢., base, half extras; Steel Angles and Shapes, 1.95¢., half extras, and Soft Steel Hoops, 2.20¢., full extras, with 5¢. to 10¢. higher than the minimum prices named for small quantities from store.

**Merchant Steel.**—A heavy contracting movement has been going on ever since August 1, and most buyers who did not cover early in the summer have closed their season's contract in the last two weeks. Mills have, from the first, maintained a strong position in the matter of prices. Current prices for ordinary lots are unchanged as follows, officially at least: Smooth Finished Machinery Steel, 1.91½¢.; Smooth Finished Tire, 1.86½¢.; Flat Sleigh Shoe, 1.71½¢.; Concave and Convex Sleigh Shoe, 1.86½¢.; Cutter Shoe, 2.40¢.; Toe Calk Steel, 2.21½¢.; Railway Spring, 1.86½¢.; Crucible Tool Steel, 6¼¢. to 8¢.; special grades of Tool Steel, 13¢. and up; Shafting, 50 per cent. discount in car lots and 45 per cent. in less than car lots in base territory.

**Old Materials.**—Since last report the Illinois Central, Santa Fé and Rock Island roads have all disposed of fairly large lists, aggregating perhaps 3500 tons. The Illinois Central's list comprised only a small portion of its accumulation, which had to be moved to make room for building operations. Prices range somewhat higher than a week ago, dealers still being the principal buyers. The following quotations represent the range of prices paid by large consumers from producers and dealers in car lots and greater, f.o.b. Chicago:

Old Iron Rails.....	\$19.00 to \$19.50
Old Steel Rails, 4 feet and over.....	14.25 to 14.75
Old Steel Rails, less than 4 feet.....	14.00 to 14.50
Heavy Relaying Rails, subject to inspection.....	23.00 to 23.50
Heavy Relaying Rails, for side tracks.....	19.50 to 20.00
Old Car Wheels.....	14.75 to 15.25
Heavy Melting Steel Scrap.....	13.00 to 13.50
Frogs, Switches and Guards.....	13.00 to 13.25
Mixed Steel.....	10.50 to 11.00

The following quotations are per net ton:

Iron Fish Plates.....	\$17.00 to \$17.50
Iron Car Axles.....	21.75 to 22.00
Steel Car Axles.....	17.00 to 17.25
No. 1 Railroad Wrought.....	15.50 to 15.75
No. 2 Railroad Wrought.....	14.50 to 14.75
Locomotive Tires, smooth.....	14.25 to 14.50
Railway Springs.....	13.00 to 13.50
Shafting.....	15.00 to 15.50
No. 1 Dealers' Forge.....	11.50 to 12.00
Wrought Pipes and Flues.....	11.25 to 11.50
No. 1 Cut Busheling.....	10.50 to 11.00
Iron Axle Turnings.....	10.25 to 10.50
Soft Steel Axle Turnings.....	10.25 to 10.50
Machine Shop Turnings.....	10.00 to 10.50
Cast Borings.....	8.50 to 8.75
Mixed Borings, &c.....	8.25 to 8.50
No. 1 Mill.....	9.25 to 9.50
Country Sheet.....	8.25 to 8.50
No. 1 Rollers, cut to Sheets and Rings.....	10.50 to 11.00
No. 1 Cast Scrap.....	13.00 to 13.50
Stove Plate and Light Cast Scrap.....	10.75 to 11.00
Railroad Malleable.....	13.25 to 13.50
Agricultural Malleable.....	12.55 to 13.00

**Metals.**—The market is steady, with prices unchanged except for Spelter, which is  $\frac{1}{8}$ c. higher. We quote: Casting Copper, in car lots, 16c. to 16 $\frac{1}{4}$ c.; Lake, 16 $\frac{1}{4}$ c. to 16 $\frac{1}{2}$ c. Less than car lots  $\frac{1}{8}$ c. to  $\frac{3}{4}$ c. higher. Pig Tin, car lots, 35c. to 35 $\frac{1}{2}$ c.; smaller lots, 36c. to 36 $\frac{1}{4}$ c. Spelter is held at 5 $\frac{1}{4}$ c. for car lots and 6c. to 6 $\frac{1}{4}$ c. for small lots. Lead is 4.65c. for 50-ton lots, 4.70c. for car lots and 5.20c. to 5.30c. for small lots. Sheet Zinc is \$7 for car lots, with smaller lots running from \$7.25 to \$7.50 per 100 lbs. The higher range of prices on new metals is reflected in sharp advances in Scrap Metals, the following being the Chicago selling prices in round lots: Copper Wire, 14c.; Heavy Copper, 13 $\frac{1}{2}$ c.; Copper Bottoms, 12 $\frac{1}{2}$ c.; Copper Clips, 13 $\frac{1}{2}$ c.; Red Brass, 12 $\frac{1}{2}$ c.; Red Brass Borings, 10 $\frac{1}{2}$ c.; Yellow Brass, Heavy, 9 $\frac{1}{4}$ c.; Yellow Brass Borings, 8c.; Light Brass, 7 $\frac{1}{4}$ c.; Lead Pipe, 4 $\frac{1}{4}$ c.; Tea Lead, 4c.; Zinc, 4 $\frac{1}{4}$ c.; Pewter, No. 1, 21c.; Block Tin Pipe, 29c.

The Continental Iron & Steel Company has removed its Chicago office from the Railway Exchange Building to permanent quarters in the Monadnock Block. The firm, whose headquarters is in New York, deals in Scrap Iron. Relaying Rails and Railroad Supplies.

### Cincinnati.

FIFTH AND MAIN STS., August 16, 1905.—(By Telegraph.)

**Pig Iron.**—It now develops that the recent heavy buying has fully covered the requirements for the third quarter of a large percentage of consumers, some having contracted until the close of the year. This being the situation, any pronounced activity in round lots for heavy tonnage cannot be looked for except in special cases. The smaller consumer is, however, much in evidence and there is a steady flow of Iron to this class of consumers in carload lots up to 200 tons. The general Foundry trade is possibly slightly more active than last month, but outside of concerns making specialties very little is being done. The major part of the sales that are made are apparently Northern Iron, due in a large measure to the difference in price, which is in its favor. We are told that there appears to be some accumulation of stock in the Valleys, while the reverse as regards the South obtains. The established figure for No. 2 Southern is from \$11.75 to \$12, Birmingham, basis, and while we are advised of sales being made as low as \$11.50, we do not feel justified in making this the minimum quotation, as from what we can learn there were but a few small lots that were disposed of at that price and for special reasons. Northern No. 2 we quote the same as last week. Freight rates from Hanging Rock district to Cincinnati \$1.15, and from Birmingham, \$2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$15.00 to \$15.25
Southern Coke, No. 2.....	14.50 to 14.75
Southern Coke, No. 3.....	14.00 to 14.25
Southern Coke, No. 4.....	13.75 to 14.00
Southern Coke, No. 1 Soft.....	15.00 to 15.25
Southern Coke, No. 2 Soft.....	14.50 to 14.75
Southern Coke, Gray Forge.....	13.00 to 13.75
Southern Coke, Mottled.....	12.75 to 13.50
Ohio Silvery, No. 1.....	18.15 to 18.40
Lake Superior Coke, No. 1.....	15.65 to 15.90
Lake Superior Coke, No. 2.....	15.15 to 15.40
Lake Superior Coke, No. 3.....	14.65 to 14.90

#### Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$17.75 to \$18.25
Lake Superior Car Wheel and Malleable.....	17.75 to 18.00

**Coke.**—Coke continues active. A number of large contracts have been made covering the remainder of the year. We quote the best grades of Connellsville Foundry from \$2.40 to \$2.60, f.o.b. ovens.

**Finished Iron and Steel.**—The Structural demand is still good. The Rail mills, already crowded, have received orders for a further tonnage, which will carry them far into the future. Prices are said to be unchanged. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.65c., with half extras; the same in smaller lots, 1.90c., with full extras; Steel Bars, in carload lots, 1.63c., with

half extras; the same in small lots, 1.85c., with full extras; Base Angles, 1.73c., in carload lots; Beams and Channels, in carload lots, 1.73c.; Plates,  $\frac{1}{4}$ -inch and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16-gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14-gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; Steel Tire,  $\frac{3}{4}$  x 3-16 and heavier, 1.83c., in carload lots.

**Old Material.**—There is apparently a fair interchange of business, and while this market may not be what can be called active considerable is being done in a small way. We are advised that prices remain unchanged. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, \$14 to \$15 per net ton; No. 1 Cast Scrap, \$12 to \$12.50 per net ton; Iron Rails, \$18 to \$19 per gross ton; Steel Rails, rolling mill lengths, \$13 to \$14 per gross ton; Relaying Rails, 56-lb. and upward, \$22 to \$23 per gross ton; Iron Axles, \$19 to \$20 per net ton; Car Wheels, \$14 to \$15 per gross ton; Heavy Melting Scrap, \$12 to \$12.50 per gross ton; Low Phosphorus Scrap, \$14 to \$14.50 per gross ton.

### Philadelphia.

REAL ESTATE TRUST CO. BUILDING, August 15, 1905.

The market during the past week has developed irregularities that were not generally expected. The situation may not be less favorable, but in some lines prices are easier and when first-class business can be had sellers are less stringent than they were a week or two ago. This feeling dominates not only Pig Iron, but most of the leading specialties as well. Satisfactory explanations for this change of attitude are not easily found, but the fact is beyond question. Some who were inclined to ask \$16.75 for No. 2 X Foundry are now ready to accept \$16.50 without demur, and some who were satisfied with \$16.50 are not disposed to turn business away at \$16.25. Mill Irons are also very dull, and while \$14.75 is asked, good business is not likely to be refused at \$14.50. As an offset to this Basic Iron is held at somewhat firmer prices, although in one case \$15 was accepted for a good sized lot. Low Phosphorus Iron is also becoming more active and a few moderate sized lots were taken at rather better prices than could have been done a week or two ago. It will be seen, therefore, that the market is of an uneven character and can hardly be regarded as strong. The market for Scrap Material is also rather unsatisfactory, Steel showing signs of renewed weakness. Although some grades of Rolling Mill Scrap maintain firm prices and are dearer, the average is not equal to what holders have been expecting. Finished products also show more or less irregularities, the one exceptionally strong article being Structural Material. The Plate trade ought to be good and no doubt will be so a little later on, but temporarily specifications are rather slow and mills could handle considerably more work if they had the opportunity for doing so. Wrought Iron Pipe is extremely dull, which is reflected in the absence of demand for Skelp Iron, Muck Bars, &c. With the exception of the three last named prospects for an early recovery in the demand are quite favorable, but it would be impossible to present a clear statement of the immediate situation without noting the fact that business is not uniformly good. Perhaps this is not as pleasant reading as could be desired, but it has the merit of being in accordance with facts. Confidence in the ultimate outcome is unabated, however, and the present lull is regarded as a temporary incident, which it is believed will soon be overcome.

**Pig Iron.**—A moderate amount of business has been done during the past week, but none in very large lots. One 5000-ton lot was taken as well as a considerable tonnage in lots of from 100 to 500 tons each, and as a rule at unchanged prices. Some good inquiries have come in during the past two or three days and will probably result in business, but whether sellers will shade a little or whether buyers will pay last week's prices or not remains to be seen. The foundation upon which prices rest is hardly as firm as could be desired, but if the remainder of the month can be passed without change of quotations there will be little danger of the month following. It seems to be rather a difficult problem to adjust prices satisfactorily, although it was believed that the lowest figures of the year would be made during June or July, but the failure to hold the advance recently made (small as it was) again opens the question whether prices are to suffer another reaction before any upward movement can be successfully maintained. No change of material importance is expected in either direction, but as a strong market for Pig Iron would indicate strong conditions in other lines, the movement in Pig Iron is regarded with far more interest than is represented by a mere 25c. or 50c. advance in that article. It is as a barometer of the entire trade that the Pig Iron market gains its importance, and for that reason it is necessary to be very exact in its analysis. Consumption is large, probably the largest ever at this season, yet with such splendid reports in regard to the cereal crops there is ample warrant for expecting a much heavier business during the next four months than during any similar period in our history. But there is no denying the fact

that there is at the moment a distinct feeling of disappointment that the market has not met the expectations that seemed to find encouragement in the movements made during the latter portion of July. Prices are not quotably lower than last week, but sales have been in smaller lots, while those who can take large tonnages can probably do a little better sometimes—10c., 15c., or perhaps 25c. better to really first-class buyers. A fair average for Philadelphia and near-by deliveries, however, would be about as follows:

No. 1 X Foundry.....	\$17.25 to \$17.50
No. 2 X Foundry.....	16.25 to 16.50
No. 2 Plain.....	15.75 to 16.00
Standard Gray Forge.....	14.75 to 15.00
Basic.....	15.00 to 15.50
Low Phosphorus.....	20.75 to 21.00
Southern No. 2 X, rail.....	15.50 to 15.75
Southern No. 2 X, on dock.....	15.00 to 15.50
Southern Gray Forge.....	14.50 to 14.75

**Muck Bars.**—No demand at a price that will induce sales. Buyers might consider business at about \$27, delivered, but sellers are unable to meet that figure at the present ratio of cost. Evidently buyers are not very anxious or they would increase their bids. Since writing the above a sale has been made at \$28.50, delivered, but they were a special quality, and would be equivalent to \$27.50 for the usual sizes.

**Plates.**—There is probably a little better demand than during the past two or three weeks, but the capacity of the mills is so great that it requires an enormous tonnage to keep them all going. Some of the back orders have been pretty well cleaned up; hence competition for new business is a little closer. The shipyards will be large consumers during the remainder of the year, and this will offset any falling off from other sources, if there should be anything of that kind. C. B. Houston & Co. placed orders for upward of 5000 tons of material for ship work, the work going to various mills in this district. It is not officially stated, but it is believed that the Steel Corporation will furnish several thousand tons for one of the yards. Later in the season these specifications will be of considerable importance, and will do much to maintain the activity which the mills have enjoyed until very recently. Prices unchanged, as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel, over 14 inches wide.....	1.73½	1.78½
Tank, Bridge and Boat Steel, rectangu- lar Plates, 14 inches wide and under.....	1.63½	1.68½
Flange or Boiler Steel.....	1.83½	1.88½
Marine, A. B. M. A. and Commercial Fire Box Steel.....	1.93½	1.98½
Still Bottom Steel.....	2.03½	2.08½
Locomotive Fire Box Steel.....	2.23½	2.28½
The above are base prices for ¼-inch and heavier. The follow- ing extras apply: Per 100		
3-16-inch thick.....	\$0.10	pounds extra.
No. 7 and 8, B. W. G.....	.15	"
No. 9, B. W. G.....	.25	"
Plates over 100 to 110 inches.....	.05	"
Plates over 110 to 115 inches.....	.10	"
Plates over 115 to 120 inches.....	.15	"
Plates over 120 to 125 inches.....	.25	"
Plates over 125 to 130 inches.....	.50	"
Plates over 130 inches.....	1.00	"

**Structural Material.**—There is no abatement in the demand for Structural Material. The shipyard requirements will be an important acquisition to the order books of the local mills, although there is no falling off in the demand from other sources, so that prospects could hardly be better than they are. Prices firm, as follows: Beams, Channels and Angles, 1.73½c. to 1.85c., according to specifications, and small Angles, 1.65c. to 1.68c.

**Bars.**—The demand for Steel Bars is quite active, but for Refined Iron it is not overly good, although most of the mills manage to keep fairly busy. Steel Bars, however, seem to take the lead for the time being and prompt deliveries are not easily obtained. Prices are 1.63½c. for either Refined Bars or Soft Steel.

**Sheets.**—The demand for thick Sheets is a little better but the high numbers are dull and prices very unsatisfactory, although quotations are about as follows for small and ordinary sized lots: 18 to 20 gauge, 2.30c.; 22 to 24 gauge, 2.40c.; 25 and 26 gauge, 2.50c.; 27 gauge, 2.60c., and 28 gauge, 2.70c.

**Old Material.**—The market is a little better for Rolling Mill Scrap, but Steel is dull and not readily salable unless at slightly lower figures. High prices were paid for the last allotments by the railways, so that the middlemen are compelled to ask in proportion for their holdings. Bids and offers are as follows for deliveries in buyers' yards:

Scrap Steel Rails.....	\$16.00 to \$16.25
No. 1 Steel Scrap.....	15.50 to 16.00
Old Steel Axles.....	20.00 to 20.50
Old Iron Axles.....	24.00 to 25.00
Old Iron Rails.....	20.00 to 20.50
Old Car Wheels.....	15.00 to 16.00
Choice Scrap, R. R. No. 1 Wrought.....	19.00 to 20.00
No. 1 Yard Scrap.....	17.00 to 17.50
Long and Short.....	16.00 to 16.50
Machinery Scrap.....	14.50 to 15.00
Wrought Iron Pipe.....	14.00 to 15.00
No. 1 Forge Fire Scrap.....	14.50 to 15.00
No. 2 Light Ordinary.....	12.00 to 12.50

Wrought Turnings.....	13.00 to 13.50
Axle Turnings, Choice Heavy.....	13.50 to 14.00
Cast Borings.....	9.00 to 9.50
Stove Plates.....	12.00 to 12.50

## Cleveland.

CLEVELAND, OHIO, August 15, 1905.

**Iron Ore.**—The movement of Ore down the lakes continues at a lively pace. Wild boats are in good demand and all of the contract tonnage is employed at top speed. The congestion at the docks and furnaces has disappeared and the lake market is again strong. Rates are steady at 75c. from the head of the lakes, 70c. from Marquette and 60c. from Escanaba. Ore prices hold as follows under light inquiry and virtually no buying: Bessemer Old Range, \$3.75, f.o.b. Lake Erie docks; Bessemer Mesaba, \$3.50; non-Bessemer Old Range, \$3.25, and non-Bessemer Mesaba, \$3.

**Pig Iron.**—Buying of Foundry Pig Iron has been a little heavier, but it has not eliminated the uncertainty as to the exact market price. Some of the foundries are still able to buy as low as \$14 to \$14.25 for No. 2 in the Valley, while certain furnaces hold for \$14.50, and even higher. Business is moving very slowly, with no prospect of an improvement until some of the furnaces now hungry for business have been better satisfied. The demand for Bessemer, Basic and Malleable is also halting. A few lots have gone lately at \$14, in the Valley, although most of the furnaces have withdrawn from the market rather than sell at that price. Buyers seem to be in position to wait for what they need, with the result that a deadlock is again on. Inquiries are coming in at a fairly good rate, which indicates business in sight. The Coke market is a little stronger under increased consumption and heavy shipments from the ovens. The best grades of 72-hour Foundry Coke are selling at \$2.40 to \$2.50, at the oven, and Furnace Coke at \$2, at the oven.

**Finished Iron and Steel.**—The Structural Steel situation has reached high tension in this territory. The jobbers, upon whom some consumers have been depending, have about sold all of the material on hand and also that which is being shipped in on specifications. In some instances the jobbers have been compelled to piece out by buying material from the smaller mills, paying 2.25c., delivered. During the week some of the largest consumers of Shapes have gone to the jobbers and have been refused material because it could not be had. Premiums of \$7 a ton have been paid and a \$5 premium is quite common. The only relief in sight seems to come from the opening of the new mills now under construction. In the meantime some shipbuilding orders which had been given provisionally have been temporarily withdrawn and several building contracts are held up, the work being postponed. Most of the big Bar buyers have covered and the smaller ones are coming in with their orders. The tonnage on the books is immense. The price still holds at 1.50c., but it is stated that some of the smaller mills propose to charge premiums when material is to be delivered quickly. The smaller consumers have inquiries in the market at present footing up about 10,000 tons. Contracts closed during the past week added about 15,000 tons to the books of the Steel companies. In Bar Iron the market is much stronger, with some of the mills in such shape that they are forced to stop taking orders for delivery in the near future. Buyers are disposed to close contracts for deliveries into the first quarter of next year. The market is firm at 1.60c., at the mill. Steel Rails are stronger, with some good buying in sight. The demand in the past week has been light. Light Rails are especially strong, with the price \$1 above the association figure. Billet business is improving in this territory, with the price tending upward. Bessemer 4 x 4 inch Billets are \$24, Pittsburgh, with some mills selling as high as \$25, Pittsburgh. The price depends on the size of the order and the specifications. The buying by the smaller mills is especially strong. Some independent mills continue to cut the price of Sheets, forcing the larger producers to meet the competition by radical reductions on prompt shipments. The price has been cut about \$4 a ton, although none of the mills is willing to take the current prices on contracts for long time delivery. The business done out of stock here has not been seriously affected, prices generally holding as they have been: For No. 10 Blue Annealed, 2.15c.; for No. 28 one pass Cold Rolled, 2.65c.; for No. 38 Galvanized, 3.65c. The volume of business is about the same under the reduced prices.

**Old Material.**—The Scrap market is about at a standstill. Buying has not picked up, the trade being in about the same state as that in Pig Iron. The market is represented approximately by the following, all gross tons: Old Steel Rails, \$14.50 to \$15; Old Iron Rails, \$20 to \$21; Old Car Wheels, \$15 to \$15.50; Heavy Melting Steel, \$14. Net tons: Cast Borings, \$7.50 to \$8; No. 1 Busheling, \$12 to \$13; No. 1 Railroad Wrought, \$15 to \$16; Iron Car Axles, \$21 to \$22; No. 1 Cast, \$13; Stove Plate, \$9 to \$10; Iron and Steel Turnings and Drillings, \$9 to \$9.50.

## Pittsburgh.

PARK BUILDING, August 16, 1905.—(By Telegraph.)

**Pig Iron.**—Interest in Pig Iron at present centers chiefly on the question as to whether the United States Steel Corporation will buy any September Iron. This will be decided within the next week or ten days. Indications favor the purchase, and the amount will likely be 30,000 to 40,000 tons, and the price about \$14.50, Valley furnace. The market on Bessemer and Basic is fairly strong at this price to-day, although it is possible a few small lots of Bessemer could be picked up at about \$14.25, at furnace. We note a sale of 500 tons at this price. We also note some inquiry for Low Phosphorus Iron and a sale of 500 tons is reported on the basis of \$21.50, Pittsburgh, standard analysis. Inquiries for Foundry Iron are rather light, and prices are only fairly strong, due to the fact that jobbing foundries are not very busy and have been postponing deliveries on Iron. Northern No. 2 Foundry is held at \$14.25 to \$14.50, Valley furnace, but it is possible the lower price might be slightly shaded on large tonnage and for prompt shipment. There is not much doing in Forge Iron. Northern brands are held at \$13.65, Valley, or \$14.50, Pittsburgh, but on a firm offer this would be slightly shaded.

**Steel.**—The market continues very strong and we can report a decided scarcity of both Bessemer and Open Hearth Billets for prompt delivery. Most of the Steel plants have all the tonnage they can take care of and are out of the market as sellers, thus centering most of the available tonnage in Steel with the Carnegie Steel Company, and this company is somewhat behind in deliveries on both Billets and Bars. We quote Bessemer and Open Hearth Billets at \$24 and Sheet and Tin Bars in random lengths \$25, maker's mill. Several contracts have been made recently with Sheet mills by which they obtain their Sheet Bars on a sliding scale based on the average monthly price of Bessemer Pig Iron. Forging Billets are \$26 to \$28, maker's mill, depending on carbons.

(By Mail.)

The general situation in the Iron trade continues quiet. This is no doubt due to some extent to the fact that so many heads of concerns are out of the city on their vacations and a good deal of business is being held up until their return. Compared with a month ago conditions are better as to inquiries, as a good many consumers are running out of material and are feeling the market on purchases likely to be made next month. A buying movement in Pig Iron is expected in September, as a number of contracts expire with that month, there already being some inquiry for Iron for last quarter. The leading Cast Iron Pipe interest came in the market last week and bought 10,000 tons of Gray Forge Iron for its Scottsdale works from a nearby furnace at \$14 a ton, at furnace. There is also some inquiry for Low Phosphorus Iron, which is held at about \$21.50, Pittsburgh, for standard analysis. The Bessemer Pig Iron Association is holding Bessemer and Basic Iron at \$14.50, Valley furnace, but is not making any sales of consequence. A few small lots of Bessemer have been sold the past week on the basis of \$14.25, at Valley furnace. While the large Foundry interests are fairly busy the jobbing foundries are dull, and for this reason the demand for Foundry Iron is rather quiet, as the large interests are pretty well covered. Northern No. 2 Foundry in small lots is held at \$14.50, Valley furnace, but on good sized tonnage \$14.25 and possibly lower is being done. Northern Gray Forge Iron is quiet, and although held at \$13.65, Valley, or \$14.50, Pittsburgh, on a firm offer this price might be shaded 10c. to 15c. a ton. The Steel market continues very firm, and we note a continued scarcity of both Bessemer and Open Hearth Billets, particularly the latter. The absolute minimum on Billets is \$24 and on Long Sheet and Tin Bars is \$25, maker's mill. We may note that premiums have recently been paid for Billets for prompt delivery. The demand for Finished Iron and Steel is about as heavy as usual at this season of the year, while for Plates, Structural Steel and Steel Bars it has been exceedingly heavy for months, with the mills very much behind in deliveries. The present active condition of the mills rolling these products is practically assured for the balance of the year. Sheets are looking up a little, but Tin Plate is practically lifeless. There is more inquiry for Iron and Steel Scrap, but Coke is dull. The Merchant Pipe trade is fairly active, but prices are lower than for a long time.

**Ferromanganese.**—There is some inquiry in the market for Ferro and we note a sale of from 75 to 100 tons to a local Steel interest at \$48.50, delivered. Another consumer is in the market with an inquiry and the business is likely to

be closed this week. We quote foreign 80 per cent. Ferro at \$48.50 to \$49, delivered.

**Rods.**—The demand for Rods is light, but prices are firm, reflecting the condition of the Billet market. We quote Bessemer and Open Hearth Rods at \$32.50 to \$33, and Chain Rods, \$33.50 to \$34, maker's mill.

**Steel Rails.**—It is probable that in the near future the Rail mills will commence to book contracts for next year delivery. Tonnage continues heavy and the roads are specifying urgently, desiring to lay as much trackage as possible before the cold weather starts. The two local Rail interests, Carnegie and Republic, are operating their Rail mills to full capacity and are booked up for practically the balance of the year. We quote Standard Sections at \$28 at mill. The activity in Heavy Rails has caused a number of mills to quit rolling Light Sections and these are in rather active demand and prices are higher. We quote 16-lb. to 20-lb. at \$28 to \$30, and 25-lb. to 40-lb. Sections at \$25, maker's mill.

**Skelp.**—There is very little business being placed and the market is weak. We quote: Bessemer Grooved Skelp, 1.50c. to 1.55c.; Open Hearth, 1.55c. to 1.60c.; Sheared, \$1 advance; Grooved Iron Skelp, 1.60c.; Sheared, 1.67½c. to 1.70c., maker's mill.

**Plates.**—We note contracts for upward of 6000 Steel cars placed lately, but as yet nothing has been done with the much talked of order for 18,000 Steel cars to be placed by the Pennsylvania lines West. The Plate mills continue full of work and on some sizes are sold up for three or four months. The present activity in the Plate trade is certain to last through the balance of this year at least. We quote: Tank Plates, ¼ inch thick, 6¼ to 14 inches wide, 1.50c., base; over 14 inches wide and up to 100 inches in width, 1.60c., base, at mill, Pittsburgh. Extras over the above prices are as follows:

	Extra per 100 pounds.
Gauges lighter than ¼ inch to and including 3-16 inch Plates on thin edges.....	\$0.10
Gauges No. 7 and No. 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 inches.....	.05
Plates over 110 to 115 inches.....	.10
Plates over 115 to 120 inches.....	.15
Plates over 120 to 125 inches.....	.25
Plates over 125 to 130 inches.....	.50
Plates over 130 inches.....	1.00
All sketches (excepting straight taper Plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)....	.10
Complete Circles.....	.20
Boiler and Flange Steel Plates.....	.10
Marine, "A. B. M. A." and ordinary Fire Box Steel Plates.....	.20
Still Bottom Steel.....	.30
Locomotive Fire Box Steel.....	.50
Shell Grade of Steel is abandoned.	

**TERMS.**—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ¼ of 1 per cent. is allowable. Pacific Coast base, 1.40c. f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 inches wide down to 6 inches of Tank. Ship or Bridge quality.

**Structural Material.**—No large contracts have been placed in the local districts recently, but several of the local Structural manufacturers state that they are practically out of the market, having all the work they can turn out for the next two or three months. The Structural trade in point of tonnage this year is bound to surpass any previous year in the history of the trade. The mills are still away behind on deliveries, especially on the smaller sizes of Beams and Channels. Prices are very firm and dealers who carry stocks are able to get slight premiums for small lots for prompt delivery. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.60c.; Angles, 8 x 8 and 7 x 3½ inches, 1.70c.; Tees, 3-inch and larger, 1.60c.; Tees, 3-inch and larger, 1.65c. Under the Steel Bar card Angles, Channels and Tees under 3-inch are 1.60c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

**Sheets.**—The general condition of the Sheet trade is quiet, but there is more inquiry, and it is believed that by September tonnage ought to show material improvement. It is believed the large stocks carried by jobbers have been pretty well worked off, and that the large trade will soon come in the market to replenish these depleted stocks. Prices are only fairly strong, and we repeat our former quotations as follows: Black Sheets, box annealed, one pass through cold rolls, No. 24 gauge, 2.05c. to 2.10c.; No. 26, 2.15c. to 2.20c.; No. 27, 2.20c. to 2.25c.; No. 28, 2.25c. to 2.30c. The lower prices quoted on Black Sheets represent minimum of the market and are obtainable only on large tonnage. Galvanized Sheets are quite firm and we quote: Nos. 22 and 24, 2.75c. to 2.80c.; Nos. 25 and 26, 2.95c. to 3c.; No. 27, 3.10c. to 3.15c.; No. 28, 3.30c. to 3.35c. We quote No. 28 Gauge Painted Roofing Sheets at \$1.65 to \$1.75 per square, and Galvanized Roofing Sheets, No. 28 gauge, at \$2.85 to \$2.95 for 2½-inch corrugation. Jobbers charge the usual advances over above prices for small lots from store.

**Iron and Steel Bars.**—The demand for Steel Bars has been very active for some months, and for Iron Bars has recently shown betterment. The local mills that roll Steel Bars are full of work, being from six weeks to two months behind on deliveries. We are advised that the official price of 1.50c. on Steel Bars is being rigidly held, but on some large contracts recently made has been guaranteed against decline. We quote Steel Bars at 1.50c., base, half extras, f.o.b. Pittsburgh, for carloads and larger lots. A recent advance of about \$1 a ton in Iron Bars is being firmly held, and we quote these at 1.60c., Pittsburgh.

**Hoops and Bands.**—A fair amount of new tonnage is being placed, which, with specification on old contracts, keeps the mills well filled up. We quote Bands at 1.50c., extras as per Steel card, and Hoops at 1.65c., at mill.

**Tin Plate.**—New demand for Tin Plate is practically lifeless, the mills that are in operation running nearly altogether on old contracts. The American Sheet & Tin Plate Company has started its New Castle works, containing 24 hot mills, and expects to start its Shenango works at New Castle, which contains 30 hot mills, some time next week. We quote Tin Plate at \$3.50 to \$3.55, base, terms 30 days, less 2 per cent. off for cash in 10 days. It is said that some of the leading Tin Plate mills have started to book contracts for fall delivery and that the outlook for fall demand is fairly good, but tonnage is not expected to be as heavy as in the latter part of last year.

**Merchant Steel.**—Tonnage is getting heavier and the large buyers who placed contracts some time ago are commencing to specify very freely. Prices are firm and we quote: Flat Sleigh Shoe, 1.50c. to 1.55c.; Toe Calk Steel, 2c. to 2.05c.; Smooth Finished Tire, 1.65c. to 1.70c.; Cutter Shoes, 2.15c. to 2.20c.; Railway Spring Steel, 1.65c. to 1.70c.; Crucible Tool Steel, 5½c. to 8c. for ordinary grades; special grades, 12c. and upward. Shafting is in fair demand, discounts being 50 per cent. off in carloads and 45 per cent. in less than carloads. For delivery at certain competitive points these discounts are slightly shaded by one or two concerns.

**Spelter.**—The market on Spelter is very firm and the price continues to advance, prime Western grades being held at about 5.55c., St. Louis, equal to 5.67½c., Pittsburgh. This is the highest price Spelter has reached for a long time.

**Merchant Pipe.**—A moderate amount of tonnage is being placed in Merchant sizes of Pipe. As noted last week, competition is severe and Pipe is being sold at lower prices than have ruled for several years. There is talk of the Standard Oil Company building a large oil line from the Kansas oil fields to tidewater. If this contract is placed it will mean a very heavy tonnage of the larger sizes of Pipe. Nothing has yet been done with the other prospective lines referred to in this report last week. Actual prices are from four to five points below the official discounts, Merchant sizes ranging from 79 to 80 off, the latter being an extreme price on carload lots to consumers. These official discounts to consumers, which, however, are shaded to the extent noted above, are as follows:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
¼ and ½ inch.....	67	51	65	49
¾ and 1 inch.....	71	59	69	57
1 to 6 inches.....	75	65	73½	63½
7 to 12 inches.....	70	55	68½	53
Extra strong, plain				
ends, ¼ to ¾ inch.....	60	48	58	46
¾ to 4 inches.....	67	55	65	53
4½ to 8 inches.....	63	51	61	49
Double extra strong,				
plain ends, ¼ to 8 in. 56		45	54	43

**Boiler Tubes.**—On Locomotive sizes of Tubes the mills are from two to three months behind on deliveries. Discounts to consumers are as follows:

	Iron.	Steel.
1 to 1½ inches.....	41	44
1½ to 2½ inches.....	41	56
2½ inches.....	46	58
2½ to 5 inches.....	53	64
6 to 13 inches.....	41	56

**Coke.**—The demand for Foundry Coke has shown some improvement lately, but Furnace Coke is quiet, due to the fact that a number of blast furnaces are idle, and the Coke that would go to these stacks is being offered for resale, which keeps prices from showing any betterment. The railroads have been making a good record for some months in moving Coke, furnishing very promptly all the cars needed. The output in the Upper and Lower Connellsville region is running somewhat over 300,000 tons a week, and shipments are nearly as heavy. We quote strictly Connellsville Coke at \$1.80 to \$1.85, while for last quarter \$2 is asked. Connellsville 72-hour Foundry Coke is held at \$2.25 to \$2.35 for nearby delivery, while on contracts \$2.40 to \$2.50 is quoted. Main Line Furnace Coke is held at \$1.50 to \$1.60, and Foundry \$1.90 to \$2.10, at oven.

**Iron and Steel Scrap.**—Inquiries are more numerous

for Scrap, which is taken as evidence that stocks held by consumers are being pretty well worked up and a much better buying movement is expected next month. There is something of a deadlock in the market, as buyers do not relish the idea of paying the higher prices for material that dealers ask. We quote: Heavy Melting Scrap, \$15 to \$15.50; No. 1 Wrought Scrap, \$15.50 to \$16; Cast Iron Borings, \$8.25 to \$8.50; Bundled Sheet Scrap, \$13 to \$13.25; Cast Steel Scrap, \$14.50; Machinery Cast Scrap, \$14.50; Old Steel Rails, short pieces, \$15 to \$15.50; long pieces, \$15.50 to \$16, all in gross tons, f.o.b. Pittsburgh. A sale of 1000 tons of Heavy Melting Scrap to a local consumer is reported at \$15.50, delivered.

## Iron and Industrial Stocks

NEW YORK, August 16, 1905.

An incident which possibly attracted more attention in the stock market than it deserved was the passing of the dividend on the common stock of the National Enameling & Stamping Company on August 9. For the past nine months dividends of ½ per cent. each were paid in January, April and July. The common stock sold in 1904 at prices ranging from 14 to 23½, and this year attained its maximum of 31½ on April 5. On August 8 it closed at 22, but immediately after the passage of the dividend it fell to 17 and continued to decline until it touched 11 on August 12, reacting to 14½ on August 15. The preferred at the same time fell from 88 to 80, reacting to 82, although the regular dividend at the rate of 7 per cent. per annum has been declared. With the exception of American Steel Foundries, whose stocks show a slight decline, all other stocks coming under the category of iron and steel stocks showed strength, and in some cases quite a little advance. Locomotive common was particularly conspicuous in this respect, advancing from 47½ on Thursday to 51 on Tuesday. Colorado Fuel advanced from 45 to 47 and Tennessee Coal from 89¼ to 91¾. United States Steel preferred moved up from 103½ to 105 in the same time, fully recovering its recent quarterly dividend. Fluctuations in other stocks were within narrow limits. Last prices on active stocks up to 1.30 p.m. to-day were made at the following prices: Can preferred 69¾; Car & Foundry common 37½; Locomotive common 51½, preferred 115; Steel Foundries preferred 38½; Colorado Fuel 46; Pressed Steel common 46½, preferred 95¾; Railway Spring common 36¾, preferred 100; Republic common 21½, preferred 87½; Sloss-Sheffield common 91; Tennessee Coal 90¼; United States Steel common 36¼, preferred 104½, new 5's 97½.

**Dividends.**—The Wheeling Mold & Foundry Company, Wheeling, W. Va., has declared an initial dividend of 2 per cent.

The La Belle Iron Works, Steubenville, Ohio, has declared a quarterly dividend of 1½ per cent.

The Pressed Steel Car Company, Pittsburgh, has declared the regular quarterly dividend of 1¾ per cent., payable August 29.

The Philadelphia Company of Pittsburgh, supplier of natural gas and controlling the electric street railway lines in that city, has declared the semiannual dividend of 2½ per cent. on the preferred stock, payable September 1.

The Barney & Smith Car Company has declared the regular quarterly dividend of 2 per cent. on the preferred stock, payable September 1.

The J. A. Fay & Egan Company has declared the regular quarterly dividends of 1¼ per cent. on the preferred and 1¼ per cent. on the common stock, payable August 19.

National Enameling & Stamping Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock.

A pamphlet issued by the Orford Copper Company, 43 Exchange place, New York, entitled "Nickel Steel, Its Properties and Applications," discusses at length the adaptation of nickel steel, in preference to carbon steel, to various specified uses. The properties of nickel steel are shown to be influenced not only by the proportion of nickel present, but also by the amount of carbon and manganese contained in the steel and by the presence of a special element other than nickel, such as chromium or tungsten. The applications of nickel steel have been increasing as its physical properties have become better understood.

The McClintic-Marshall Construction Company has started the steel work on the large addition it is building to its structural plant at Rankin, near Pittsburg. When this addition has been completed the capacity of this plant for fabricating structural steel will be about doubled.

## The Machinery Trade.

NEW YORK, August 16, 1905.

With numerous inquiries in the market, some of large proportions, the machinery trade is in an encouraging condition just now, and business is declared as being far better than it was during the corresponding month of last year. The trade has picked up rapidly during the last week or so, and it is thought that business will continue good until the fall trade opens. Because of the fact that machine makers in many instances cannot promise early deliveries those who deal in second-hand machines are getting considerable trade from those who are in urgent need of machines. Export business continues good, and there is promised additional trade from both Japan and Russia shortly. The most important list before the trade just now is that of the Lackawanna Railroad, which will mean an expenditure for machinery amounting to \$20,000 or more. The machines named in the list are intended for Buffalo, Scranton and Kingsland. Power plant equipment men are interested in the plan to rebuild the Lackawanna Terminal at Hoboken, but no information has been given out as yet as to the size of the power plant to be installed there. The Edison storage battery plant, referred to in this column last week, is to be located at Orange. It is stated that the batteries will be manufactured with special machinery and the Edison Storage Battery Company has been formed to carry out the project. Thomas A. Edison is president, W. S. Mallory vice-president and J. F. Randolph secretary-treasurer.

The recent inquiry sent out by the Southern Supply and Machinery Dealers' Association asking manufacturers whether they intended printing pages for the loose leaf catalogue cover adopted at the convention held in 1904 by the organization, has met with numerous counter inquiries asking just what the plan means. F. D. Mitchell, secretary-treasurer of the American Supply and Machinery Manufacturers' Association, has been besieged with inquiries from members of that organization for information as to the plan. From information given by officers of the Southern Supply and Machinery Dealers' Association it is learned that the organization adopted a resolution asking manufacturers to furnish members of the dealers' association with loose leaf sheets cataloguing their goods. It is the idea of the dealers to have the manufacturers furnish these leaves in order to fit a binder to be carried by the traveling men and to be used by salesmen in the offices. It is the dealers' idea that such catalogues will facilitate their work, and by their use the salesmen can avoid the necessity of referring to so many catalogues. Manufacturers can submit as many of the loose leaf sheets as they think necessary to show their goods. The cost to them will be simply their own expense for printing, as the dealers will charge nothing for filing the loose leaves with their catalogue binders.

### Additions to Railroad System.

The commission appointed by the New York Central & Hudson River Railroad to arrange for electrifying some parts of that company's lines has nearly completed its work, and before long the machinery trade and especially those interested in electric equipments will no doubt be given some patronage by the railroad. Orders have already been placed for 35 electric locomotives and 175 cars for use on the company's suburban service. The engines are to be built by the General Electric Company and the American Electric Company jointly. Each engine will weigh 95 tons and will be capable of drawing an eight-car train at the rate of 63 miles an hour. Each engine will have eight driving wheels with a diameter of 44 inches, and it is understood that the consignment of machinery will be used to draw through trains from Croton 35 miles out to White Plains and into the Grand Central Station. The cars have been ordered from the American Car & Foundry Company, but the General Electric Company will supply the electrical equipments. They will be used for suburban service, and it is understood that the locomotives and cars are to be delivered by August, 1906. The company is also preparing to enlarge its machine shops at some points, and plans have been filed with the Bronx Building Department for several structures to be erected in the company's grounds at Sedgwick avenue, High Bridge. A one-story frame electric locomotive shop 24 x 176 feet in size will be erected, besides a roundhouse, to cost \$24,000, a sand house, shops and an office building. These structures are to be erected to be used in connection with the electric service. In addition to that the company will erect a two-story brick power station on its property at 153d street and Sheridan avenue, New York. The station will be 61 x 242 feet in size and will cost about \$58,000. It is understood that the power equipment has not been entirely arranged for, but at present no announcement will be made as to the requirements. The Big Four system of the company's lines is also being improved to a considerable extent, and for some time past machinery has been purchased for the Belfontaine, Ohio, machine shops. The company is planning to enlarge its machine shops at Indianapolis, and although no details have been given out as to the size of the extension, it is said that the improvement will be of considerable extent and will

entail the purchasing of a considerable quantity of machine tools.

The Utah Copper Company, Salt Lake City, Utah, is preparing to build a very large smelter in connection with its plant at that place. The company is in the market for a vast amount of machinery, which includes some 300 reciprocating concentrating tables, 300 vanners, coarse ore crushing machinery sufficient to handle 5000 tons daily, 24 sets of 15 x 36 inch rolls, 36 6-foot Chilian mills, about 4000 horse-power of induction motors in sizes ranging from 25 to 200 horse-power, steam and electrical machinery for 5000 horse-power generating plant, an electrical pumping plant having a capacity of 5000 gallons a minute against a head of 250 feet, and a large amount of elevators, conveyors, screens, transmission machinery, &c. The company will also require about 4000 tons of structural steel in its buildings.

It is said in the trade that the Utah Copper Company is affiliated with the American Smelting & Refining Company's interests. D. C. Jackling is general manager of the company, F. G. Janney is superintendent, C. M. MacNeill appears as president, E. A. Wall vice-president, and Spencer Penrose secretary-treasurer. It is understood that plans are well under way for the new smelter, and work will be begun in a very short time.

### Important Machinery Requirements.

The Wire & Telephone Company of America, which was recently formed, has taken over the plant of the Empire Wire Company and the Electric Wire Works of Rome, N. Y. The latter concern has a plant for the manufacture of bare and magnet wire, and an announcement has been made that all the old contracts made by the Empire Wire Company will be carried out by the new concern, which was incorporated under the laws of the State of New York on July 12 last. The company will maintain its general offices and works at Rome and the branch office at 43 Exchange Place, New York. The directors of the new concern are: C. F. Niles, president; J. S. Dyett, vice-president; Walter C. White, vice-president; H. T. Dyett, secretary and treasurer; Oliver Shiras, chairman Executive Committee. Directors: These men and S. C. Houghton, Robert A. Downey, F. M. Potter, Jr., and Thomas H. Stryker.

The new building is to be erected by the new company in which an insulating department and telephone supply department will be installed. The new building will be of brick construction 50 x 250 feet in size and will be arranged so that it can be extended. The improvement it is calculated will involve an outlay of \$60,000 and when completed the company will be ready to make bare wire, magnet wire, telephone instruments, switchboard cables and cords and the like in large quantities. It is probable that the machine trade will be benefited by the improvement, as no doubt a considerable quantity of equipment will have to be purchased before long.

The Central Foundry Company, whose main offices are at 116 Nassau street, New York, is extending its plant at Bessemer, Ala. The work has been going on for some time and the company has been purchasing machinery in the New York market. The company manufactures universal pipe at the Bessemer plant and the demand of late has been larger than it has been able to meet with the facilities there. New machinery is being installed and a large traveling crane was shipped last week to be placed in the main portion of the foundry in order to handle the heavy castings. The company is considering the advisability of installing pneumatic pipes to tamp the sand in the boxes around the patterns. This work at present is done by the men working in pairs, using the ordinary short tamping tools to ram the sand tightly into the boxes. The company has been experimenting with pneumatic tampers and it is probable they will be adopted. The pipe made at Bessemer is used for water, gas, steam and compressed air. The plant is the only one in the South where the new universal pipe is turned out, other plants of the company being used for the manufacture of the ordinary style of cast iron pipe.

The Carnegie Technical Schools, Carnegie Institute, Pittsburgh, is in the market for an exhaustor to take care of 21 forges with outlets. The flue outlet is 30 inches in diameter and opens flush with the floor line. The schools will also purchase a pressure blower to supply air at 3-ounce pressure to the forges, the pressure pipe being 16 inches in diameter and opening on the floor line. The schools are also receiving prices on the fan and blower, both direct connected with 220-volt D. C. motor and also belt driven. The prices on motors are to be submitted separately and the apparatus is to be erected at the Carnegie Technical Schools before October 1. E. V. D. Johnston is in charge of the purchasing.

E. Cooper Wills of Bluefield, W. Va., has a number of new plants under construction in his charge as engineer and general superintendent. One of the most important projects he is connected with is the new power plant for the East River Electric Company. He is installing in that plant 1500 horse-power boiler capacity, one 750 horse-power direct connected cross compound engine, one 450 horse-power Corliss engine, one 250 horse-power slide valve engine, one 40

horse-power engine and all the necessary paraphernalia which goes to constitute an electric light plant for generating current for street railway and lighting purposes. Machinery is being purchased now, and Mr. Wills is receiving the bids.

The midsummer inactivity of the last few weeks which has characterized the Pennsylvania Railroad Company's inquiries shows no sign of changing at the present time, and with the exception of the few appended items inquiries among the tool and machinery trade have been conspicuous by their entire absence. With the resumption of the meetings of the Board of Directors next month it is probable that many contemplated projects may be given consideration, but it is unlikely that anything will be done until that time. Bids are being received on the following: Two 12 x 7½ x 10 duplex outside end packed boiler feed plunger pumps; one three-spindle sensitive drill; special feed water heater, with all pipe connections regular size; two submerged type centrifugal pumps operated by vertical 220-volt direct connected motors.

It is expected that within the next month electrically-propelled trains will be running over the Long Island Railroad tracks between Flatbush Avenue Station, Brooklyn, and Jamaica. The Long Island Railroad Company has for some time been arranging to additionally equip its electric service, and it is understood that there are plans for further improvements along the same lines which will interest builders of electrical machinery and manufacturers of electrical supplies.

Chas. E. Duston & Co. of 11 Broadway, New York, dealers in electric and steam machines, have secured the large works formerly occupied by the Spiral Rivet Tube Company, Fisk and Melory avenues, Jersey City, N. J., and have moved all their materials from their plants formerly located at Orangeburg, N. J., to the new works, which have been fitted for the purpose of handling and storing electric generators, steam engines, boilers and all forms of electric and steam machines. There are four buildings in the Jersey City plant on about 1½ acres of land. The land is located on the site of the Central Railroad.

The Department of Water Supply, Gas and Electricity of the City of New York has opened bids for the construction and equipment of a new pumping station at Gravesend, Brooklyn. Twenty-six bidders contested for the equipment work and five for the construction. The figures on the former item have not been tabulated as yet, but Ryan & McFarren of 166 East Twenty-third street submitted the lowest bid for the construction, which was \$22,730 and was \$4000 lower than that of the next lower bidder.

The Termaat & Monahan Company of Oshkosh, Wis., is enlarging its plant to the extent of a new foundry building and large additions to its machine shop. The company has not purchased its machinery equipment as yet, and is in the market for machine tools and a complete foundry outfit. The Termaat & Monahan Company makes marine gasoline engines and like appliances.

The Baltimore Foundry Company of Baltimore, Md., desires price and time of delivery on a blower for an 8-ton cupola and a 14-ton cupola. It is desired that the blower shall be capable of running one or both cupolas at the same time, and the company wishes to know the space the machine will occupy.

## New England Machinery Market.

WORCESTER, MASS., August 15, 1905.

The feeling of strong contentment which characterized the machinery trade of New England with the going out of July has not diminished as the first half of August is ended. The sharp increase in the demand for machine tools has been maintained, and the promise of much good business in the autumn continues unabated. A feeling of complete confidence characterizes the trade among manufacturers and dealers alike. The crop reports have been read with much satisfaction, promising full yields of the great staples, together with satisfactory conditions among the minor products of agriculture. Foreign trade is good and there is no reason to suppose that it will fall off as domestic conditions improve. This business has for some months past meant the difference between doing business without a profit and a satisfactory return on the investments of the machine tool manufacturers. With the increased domestic demand it will mean an additional profit.

In other times of heavy demand at home machine tool builders have been prone to let their foreign business take a secondary position, refusing in some instances to accept orders from abroad where it was necessary to throw over some business because of the excess of demand. For the time being this paid because high prices could be obtained in this country. But in the long run it is doubtful whether it is good business to neglect a field which during dull times in America provides an extremely important market and one without which shops must be operated at a loss. The machine tool men realize this better than ever before, and the seeking of foreign business will continue to a greater extent than during previous periods of American prosperity.

The merger of independent shoe machinery manufacturers alluded to in *The Iron Age* of August 3 has taken definite

form in the organization of the Boylston Mfg. Company, a New Jersey corporation, with headquarters at Lynn, Mass. The company will take over a few independent companies, including the Tripp Giant Leveler Company, the Flagg Company and companies in which W. A. Copeland of Lynn is interested. It is presumed that other companies independent of the United Shoe Machinery Company, Boston, will eventually be absorbed. The purpose is to bring together shoe machinery interests so that the Boylston company will be able to equip a shoe factory complete.

A cloudburst in the Naugatuck Valley, Conn., caused considerable damage in the lower valley, especially because of the subsequent bursting of two reservoir dams above Bridgeport. That city was saved a serious injury to its manufacturing interests by the fact that the tide was low, providing a sufficient channel to take care of the greater part of the flood. As it was the basements of manufacturing establishments were flooded. At Shelton considerable damage was done, particularly in the plant of the Whitlock Printing Press Company. The Union Metallic Cartridge Company, Bridgeport, had its basement flooded, causing serious loss to stock, and water put the power house temporarily out of commission.

The United Drop Forging Company has been organized at Springfield, Mass., to manufacture iron and steel forgings of all descriptions, paying special attention to automobile, gun and machinery work. A new shop will be erected at West Springfield to be 50 by 100 feet and one story, the arrangement being such that the initial capacity can be doubled by simply installing new machinery. The company owns land sufficient to provide for material growth in the future. It is in the market for electric motors, die machinery, drop hammers, trip hammers, trimmers and other machinery of a modern drop forging establishment. It is expected that the plant will be ready for operation by September 15.

The stock of the Taft-Pierce Company, Woonsocket, R. I., has been purchased by F. S. Blackall, New York, who has for the past two and one-half years been the manager of the business for Louis V. Hubbard, receiver of the company. The company is a contractor for the manufacture of mechanical specialties and light machines with interchangeable parts, and undertakes the designing and perfection of various mechanisms within the capacity of the plant. The change in ownership will have no particular effect upon the management of the plant, as Mr. Blackall will continue along the lines under which he has conducted the business for the receiver. The capital stock of the company is \$300,000, of which \$100,000 is common stock and the balance preferred. The former was recently purchased by Mr. Blackall from Edwin J. Pierce and the preferred stock from the Tabulating Machine Company, which makes him the sole owner. The receiver has been discharged by the court.

### Important Power Project.

The Messalonskee Electric Company, Oakland, Maine, is to establish another power station to develop 1500 horsepower by water and 600 horse-power as a steam auxiliary. No decision has been made as to the engine and boilers nor as to the electric equipment. It is possible that the steam plant will be established in connection with the company's existing plant on the same stream, in which case the same type of engine and boiler as that already in use will be installed. If, however, the steam plant is made a part of the new hydraulic station the company will go into the market for engine and boilers. As for the electric equipment, there is some question as to the distance which the power will be transmitted, and until this is decided the matter of electric generating apparatus will not be finally determined. Water turbines and other appliances of a hydraulic plant will be required. Specifications may be had from Leonard Metcalf, engineer, 14 Beacon street, Boston, who is designing the plant.

The Turner Tanning Machinery Company, Boston, Mass., has purchased the business and plant of the Vaughn-Rood Machine Company, Peabody, Mass., and will remove the Turner business from South Boston to Peabody, where the Vaughn-Rood plant will be occupied. The announcement has the added significance in the machinery trade in that the acquiring of the Peabody property will make unnecessary the building of a new plant, which had been planned by the Turner Tanning Machinery Company. Consequently large purchases of machine tools will not be made. The Vaughn-Rood shops are comparatively new, the company having been formed in 1903, when the buildings, including machine shops and foundry and pattern and carpenters' shops, were erected and equipped with modern tools. The Turner Company recently purchased the leather machinery business of the Vaughn Machine Company, Peabody, of which the Vaughn-Rood Company is an offshoot, and the transfer just completed means the perfecting of the consolidation of competing interests in this line of machinery. The merger will also mean the combining of the offices and repair shops which both companies have maintained in Philadelphia, Milwaukee and several foreign cities.

The Standard Metal Work Company has been organized at Thompsonville, Conn., to manufacture bends of large pipe for steam engineering, together with special fittings for this class of work and for the bending and coiling of pipes from

iron, brass, &c., for heating, refrigerating and kindred uses. Special short radius work is one of the specialties which will be developed as soon as practicable. The company is closely allied with the G. H. Bushnell Press Company, and the work will be done under that company's management and in its shops until such facilities have been outgrown. Mark Worth Bushnell is the managing director of the new company and James Acton Miller is the mechanical engineer. The company is in the market for large pipe threading machines, but most of the special machinery has been designed and will be built by the G. H. Bushnell Press Company.

The Connecticut Computing Machine Company, New Haven, Conn., organized to conduct a business in computing machines, has a remarkable list of incorporators in that it comprises an unusual number of men who are prominent in the metal industry of Connecticut, including prominent brass manufacturers of the Naugatuck Valley and hardware manufacturers of New Britain. The incorporators are Max Adler, Rollin S. Woodruff, William R. Tyler, Edward S. Swift, Fred M. Carroll, John S. Bradley, William H. Douglas, Andrew R. Bradley, Samuel H. Read, Dwight W. Blakeslee, John T. Manson, D. A. Blakeslee, William H. Smith and Levi T. Snow, all of New Haven; Charles M. Jarvis, Charles Glover, Philip Corbin, A. J. Sloper, William H. Hart and H. C. Noble, all of New Britain; J. H. Whittemore, Naugatuck; Charles Brooker, Ansonia; E. H. Sears, Collinsville; W. H. Lyon, Meriden, and William C. Lathrop, Shelton. Details of the company's manufacturing plans will be announced later.

J. R. Cousins & Co., Rockland, Maine, have established a shop in that place for the manufacture and repair of boilers. They are in the market for a second-hand set of hand rolls 6 feet 2 inches between housings, the upper roll 4½ inches and the bottom rolls 4½ inches, and a hand punch and shears combined to cut ½-inch stock and punch ¾-inch holes in ½-inch stock, the depth of throat to be 28 or 30 inches.

## Chicago Machinery Market.

CHICAGO, ILL., August 15, 1905.

While no large contracts have been closed during the past week a good volume of business is coming from every quarter in lots of one to half a dozen machines each. The International Harvester Company has been buying actively and is now taking figures on a round lot of machine tools aggregating a good many thousand dollars. The Chicago, Burlington & Quincy road has all figures in on the large list referred to last week, but no awards have been made as yet.

Western Electric Company is still picking up machines for its new plant at Hawthorne, buying equipment for each department apparently as soon as the building is ready to receive the tools. An unusually large number of the largest sizes of vertical boring mills has been sold in the week past, and the demand is also excellent for high speed drills. Tools required in the boiler and structural iron work are moving well and demand for foundry equipment is better than it has been for years. Most builders of cranes and hoists are busy, up to their maximum capacity. There appears to be a better demand for second-hand tools and for new tools from store, because the deliveries promised by machine builders are too extended to meet the ideas of a good many buyers who can find profitable work immediately for such additions as they wish to make to their equipments.

Demand for steam boilers and engines, gas and gasoline engines and for water power equipment is all that could be wished for. The construction of municipal and private water works, electric light and power stations and gas works is keeping the industries represented fully occupied. Street and interurban railway projects are asking for bids or estimates on equipments, the aggregate of which is extremely large, and the plethora of money in country and city banks looking for investment is facilitating the consummation of an unusually large percentage of such projects. Mines also are large buyers of new equipment for the same reason.

The city of Chicago, J. M. Patterson, Commissioner of Public Works, is advertising for bids on four 150 horse-power tubular boilers for the City Hall. This is the first of a series of readvertisements for boilers that will be published as the result of a permanent injunction secured by a local boiler firm restraining the city from opening bids or awarding contracts on internally fired boilers, because the law demands an alternative type in every case where advertisements specify any article embodying patents controlled by any one maker. The same officer is also asking for bids on plumbing, drainage and gas fitting for the new Thirty-ninth street pumping station.

The Fisher Machine Works, Leavenworth, Kan., is erecting a 100 x 100 foot machine shop and an 80 x 80 foot foundry, both buildings being constructed of steel and brick. Two Pawling & Harnischfeger electric traveling cranes have been ordered and other machinery will be required. The company reports that its old shops are employed to their maximum capacity in the manufacture of Corliss engines, portable boring bars and in a general line of machine and foundry work.

The Western Wheelbarrow & Mfg. Company, Kansas City, Kan., has absorbed the Prouty-Pierce Locomotive Mfg. Company of the same city and will remove from its rented plant to the plant of the Prouty-Pierce Company; the latter company had previously manufactured locomotives, but the plant will now be devoted exclusively to the manufacture of wheelbarrows and trucks of all kinds. An addition which increases the available floor space of the plant by 20,000 square feet has just been completed and the company will be in the market for an equipment of machinery for the manufacture of wheelbarrows and trucks. The corporation was capitalized in the sum of \$150,000, fully paid up.

It is stated that the Chicago, Burlington & Quincy road will expend \$500,000 in the erection of a 60-stall round-house, several miles of track, and in removing its shops from their present location to what is known as the Tacoma addition, where the company has acquired 40 acres of land.

The address of the Prescott Company mentioned in this column last week was wrongly given as Marinette, Wis., instead of Menominee, Mich. The new plant which the firm is building comprises a steel foundry as well as improvements and enlargements to other buildings of the plant. The steel foundry will be employed in the manufacture of the castings for the company's own saw mill, mining and pumping machinery business, as well as for general jobbing work.

Apperson Bros., automobile manufacturers, Kokomo, Ind., are greatly enlarging their plant, adding 50 per cent. to its capacity. The addition is mainly in the erection and equipment of shops for building automobile engines, the firm having had its engines built by contract heretofore. Machinery to the amount of \$20,000 will be purchased.

The Kokomo Brass Works, Kokomo, Ind., contemplates the erection of a large foundry and machine shop for work in brass, bronze and aluminum. This improvement will call for the purchase of brass furnaces, Monitor lathes, drills, polishing and buffing machinery and other foundry and finishing appliances.

The Odum-Taylor Boiler Company, Memphis, Tenn., is making rapid progress in the organization of its business and the erection of its large plant. A full equipment of boiler, shop and metal working tools will be purchased and specifications have been issued.

The Bartlett Steel Company, Joplin, Mo., will require cold saws, punch, splitting shears, drill presses, cranes, hoists, bending rolls and other equipment for new shops to be built immediately to take the place of structures destroyed by fire August 3.

The Meyer Machine Company, Petersburg, Ind., contemplates the purchase of a steam boiler as well as a line of tools for the manufacture of emery stands, grindstones and pitless scales.

## Cincinnati Machinery Market.

CINCINNATI, OHIO, August 15, 1905.

Machine tool builders as a rule are exceptionally well pleased with the activity that is being manifested, and while August is the month when trade is usually expected to show a marked decrease, the fact remains that the change has been scarcely perceptible. A large percentage of the plants have their order books covered for the remainder of the year and even longer in some instances. The foreign end of affairs is receiving a great deal of attention and is a large factor in the way of development. Shipments for the month of July show a substantial increase, which is evidence that conditions are gradually improving. Many manufacturers are estimating on the list of tools to be furnished for the Panama Canal, which, taken in conjunction with a number of scattering orders from Japanese points, makes the situation an interesting one. Cincinnati will send a delegation of its representative men to attend the National Reciprocity Conference to be held in Chicago on August 16 and 17. The meeting will be of vital importance to the machinery manufacturers of the country, particularly machine tool builders. It is the purpose of this conference to arrange to bring pressure to bear looking to the making of reciprocity treaties with European and other countries, particularly Germany. The National Machine Tool Builders will be represented by William Lodge and P. E. Montanus, the Manufacturers' Club by Thos. P. Egan, the Cincinnati Metal Trades Association by Geo. P. Altenberg, manager of the foreign department of the J. A. Fay & Egan Company. Thos. P. Egan of the J. A. Fay & Egan Company made the following statement: "The new German tariff goes into effect March 1, 1906, and raises the tariff on American goods from 50 to 100 per cent. and in some cases 300 per cent. The special tariff that interests me is on machinery, which has been raised 100 per cent. This of course makes exporting machinery into Germany practically prohibitory, and unless we retaliate or do something to stop the effect of this new tariff we of course will be shut out of Germany and they will have the benefit of our market without paying anything for it. It would take very little exertion on the part of Mr. Roosevelt to put us back on a good footing with Russia,

which we never should have lost. It will require very careful handling to put us on a working basis with Germany, France, Austria-Hungary, Scandinavia and all Europe are following in the footsteps of Germany. Our company, which is the largest manufacturer of wood working machinery in the world, up to three years ago made sales in Russia amounting to \$100,000 per annum, but this year they will not amount to \$10,000, and yet the organization remains intact to do business the moment this is remedied. There are more manufacturers in Cincinnati doing a direct export business than any other city in the United States, and we are consequently very much interested."

The Rahn-Mayer-Carpenter Company reports trade as excellent. Last week it made an export shipment of two carloads, and has several large orders for lathes to follow this week. The company is adding new equipment as needed, and now has practically its entire available floor space covered.

The Cincinnati Galvanizing Company was recently incorporated with \$10,000 capital, and is located at Straight street and McMicken avenue. Christian Schott is the leading spirit of the new corporation, and is rapidly putting the plant in working order. The company will at present manufacture galvanized bar iron, and later widen the scope of its product. It has secured equipment for present requirements, but will probably add to this later.

Smith & Mills have found it necessary to use their entire building and have asked their tenants to vacate. This will give the company a total of 24,000 square feet floor space over which it is now distributing machinery. The concern has purchased a number of new tools and will add another miller and large planer.

The R. K. Le Blond Machine Tool Company advises that trade is unprecedented for this season of the year, especially for export. Several carloads were sent to Russian points a week or two since and additional orders have been received from the same source.

The J. M. Robinson Mfg. Company's new building will be under roof this week and when completed will give the company practically 15,000 square feet. The offices will occupy the front portion and will be modern in all respects. The company has a new design of cornice brake which is finding a ready sale. Trade with Mexico and Canadian points is said to be fair and growing, and there appears to be an increased demand for special machinery from these points.

The John H. McGowan Company has secured the complete pumping outfit for the new water works at Arcanum, Ohio. Business is said to be a little more quiet than last month, yet there are several large contracts ahead.

The J. A. Fay & Egan Company's new addition is rapidly nearing completion. It will be five stories high and 100 x 100 feet. The building will be devoted to exhibit and warehouse purposes and will permit the enlargement of the present offices, which are becoming congested. The company states that the month of July shows a larger business than any month in the 75 years of its history.

The Lodge & Shipley Machine Tool Company says that business is running smoothly and that orders are coming forward in sufficient quantity to keep the entire plant busy for some time to come.

The Cincinnati Milling Machine Company's new plant is now under roof and will be ready for occupancy within the next week or two. No change in trade is reported, which is said to be excellent. Fred Geier expected to attend the Reciprocity Convention in Chicago this week, but was suddenly called to New York.

## Philadelphia Machinery Market.

PHILADELPHIA, PA., August 15, 1905.

Conditions which have governed the local machinery market for the past six weeks are unchanged and the market is devoid of any special features. The absence from the city of both buyers and sellers and the tendency to defer summer business until after the heated term, which appears to be growing more pronounced year after year, has resulted in more than a month of particular inactivity. The dullness of the present market is somewhat more noticeable among the machinery merchants and among dealers in second-hand machinery, engines and boilers, who in some cases report sales at a very low point. The demand in these fields seems to have confined itself to the purchase of single tools and machines of the smaller sizes, largely for purposes requiring immediate deliveries. There is an entire absence of business of any magnitude, such as complete plant equipment, either for new work or for general requirements, matters of this class being largely deferred until later in the year.

### Good Prospects for Fall Trade.

With the exception of some business placed and about to be placed by the Seaboard Air Line, in which both merchants and manufacturers in this territory are interested, there has been but little movement regarding further pur-

chases by the various railroads. Some good specifications, however, have been submitted and bids made, and there is no doubt that a large amount of business will develop from those sources early during the coming fall.

Notwithstanding the present inactivity of the market the undertone is strong; the large amount of business which has been held up recently and which will no doubt develop later inspires confidence in the volume of business which will be transacted during the remainder of the year. In addition the general conditions of the country are good, crop conditions most favorable, railroad earnings increasing and, in fact, all signs point to continued general activity, from which the machinery trade will no doubt receive its full share of increased business.

Manufacturing plants as a rule keep fairly busy; while there have been no large gains in new business they have a good volume of business on hand, and this, together with the present day to day orders, keeps them fairly busy. There are exceptions on both sides; here and there plants that have their utmost capacities taxed and are not particularly anxious for more business at the time, orders being taken only subject to extended deliveries. On the other hand there are some which, while they are not actually suffering for business, could take on a much larger volume and are now to a great extent dependent on day to day orders to keep their plants actively engaged; the latter, however, we must say, are extremely few.

The iron foundries and steel casting plants are generally busy, particularly the latter, which are in many cases being pushed for prompt deliveries. Some gray iron foundries are likewise busy, but the general run of the smaller jobbing foundries could conveniently handle a much larger tonnage.

### Plant Extension.

The United States Mint in this city is in the market for a 14-inch lathe, a sensitive drill, a grinder and several other tools. Proposals for some of these tools have already been invited, bids closing on August 22.

The firm of C. J. Mathews & Co. is building an addition to its leather manufacturing plant at American and Willow streets. The new building will have a frontage of 57 feet and be 60 feet in depth. The walls will be of brick, while the columns, girders, beams and floors will be of reinforced concrete, as well as the roof construction, using the unit girder frame system. A complete outfit of leather working machinery for making glazed kid will be required for the new building, as will also a new boiler of about 125 horsepower capacity.

The Phillips Pressed Steel Pulley Works has completed plans for the erection of additional building, both for manufacturing and storage purposes. Work is expected to be started at an early date. This company finds a good demand for its pressed steel pulleys. Foreign business has improved materially, and an agency has recently been established with C. W. Burton, Griffiths & Co., London, England. Recent export deliveries include shipments to both England and Sweden, while domestic shipments are being made to all parts of the United States.

Wickes Bros. Company, through its Philadelphia office, reports a good demand for machinery, particularly for air compressors. Inquiries for the latter are being received daily, and a sale has recently been made of a duplex compressor of 400 cubic feet of free air per minute to a Pennsylvania paper mill; another of the same type but of 280 cubic feet capacity was sold to B. Ridgway & Sons of this city. Two straight line compressors of 580 and 450 cubic feet of free air have also been furnished a Massachusetts steel casting company.

The Philadelphia Roll & Machine Company is very busy. Orders have been received for a large number of rolls, both finished and in the rough, for rail and plate mills, including several 10-ton chilled rolls and a number of 12 and 15 ton sand rolls. The company has also received orders for some heavy charcoal iron castings, several of which will weigh over 30 tons each. Shipments of rolls are constantly being made to the various steel and iron mills, and the conditions for future trade are considered by them to be most favorable.

The Tabor Mfg. Company continues to be very busy. The demand for molding machines during the past few weeks has been largely for their Draper stripping plate machines, for which a number of orders have been taken. Orders for Tabor-Newbold saws have been good, as have also been those for cutters and special parts. A 15-inch square power ramming split pattern machine will be furnished New England parties, as will also two 18-inch square Draper machines and two 14-inch square plain Draper machines. A 12 x 24 plain Draper machine will be supplied an Ohio foundry, while two 12-inch square machines are to be delivered Delaware purchasers. Two 20 x 20 plain Draper machines and two 14 x 16, with 9-inch draft, and two of the same size, with 5½-inch draft, have to be supplied local concerns.

The New York Ship Building Company, Camden, N. J., launched on the 12th inst. the battle ship Kansas. This vessel is one of the five battle ships authorized by Congress several years ago. The keel was laid February 10, 1904, and the general dimensions are 456 feet long, 76 feet 10

inches beam. The Kansas' displacement will be 16,000 tons and draft 24 feet 6 inches. The power equipment consists of 12 boilers and triple expansion engines of 16,500 horsepower, and 18 knots will have to be developed to meet the requirements of the contract. The launch was in every way successful.

### Government Purchases.

The Isthmian Canal Commission will open bids in the office of the General Purchasing Officer at Washington, D. C., September 13 for furnishing a precision lathe, machine tools, stocks and dies, gasoline engines and accessories, gasoline reservoir and circular saws. Specifications can be obtained at the office of the assistant purchasing officer at 24 State street, New York City, and other offices throughout the country.

The Department of the Interior will open bids on Thursday, August 31, for one 200 horse-power boiler, a 50 horse-power boiler and one 450 horse-power feed water heater.

The Thresher Electric Company has been awarded the contract in class 28 for six 3 horse-power chain ammunition hoist motors, with spare parts. The company's bid was \$2354.

The following bids were opened August 8 for appliances for the various navy yards:

Bidder 5. American Ship Windlass Company, Providence, R. I.

15. Burke Electric Company, Erie, Pa.
16. Babcock & Wilcox Company, Philadelphia, Pa.
27. Crocker-Wheeler Company, Ampere, N. J.
28. Wm. Wirt Clarke & Son, Baltimore, Md.
37. C. & C. Electric Company, New York.
40. Drew Machinery Agency, Manchester, N. H.
41. Thomas H. Dallett Company, Philadelphia, Pa.
58. General Electric Company, Schenectady, N. Y.
60. R. W. Geldert, New York.
70. Holtzer-Cabot Electric Company, Brookline, Mass.
71. Hyde Windlass Company, Boston, Mass.
81. J. B. Kendall, Washington, D. C.
82. E. Keeler Company, Williamsport, Pa.
84. Lidgerwood Mfg. Company, New York.
106. Oliver Machinery Company, Grand Rapids, Mich.
111. Pratt & Whitney Company, Hartford, Conn.
115. Royce & Ricketts, Washington, D. C.
118. Ridgway Dynamo & Engine Company, Ridgway, Pa.
133. Sprague Electric Company, New York.
142. United Marine Supply Company, New York.
149. Williamson Bros. Company, Philadelphia, Pa.

#### Schedule No. 40.

Class 52. Two sectional water tube vertical header boilers—Bidder 16, \$7307; 82, \$6950; 115, \$6643.

#### Schedule No. 41.

Class 62. Two 20-ton hydraulic jacks—Bidder 28, \$284.70; 40, \$166.50; 60, \$144.63; 81, \$144.

Class 63. One Pratt & Whitney new model turret lathe—Bidder 111, \$1049.50.

Class 64. One Pratt & Whitney 1 x 10 inch new model lathe—Bidder 111, \$657.50.

Class 65. Two electric portable drills—Bidder 41, \$1050.

#### Schedule No. 42.

Class 71. One electric motor, 100 horse-power—Bidder 58, \$1097; 118, \$1575.

Class 72. One inclosed type direct current 220-volt electric motor—Bidder 15, \$216; 27, \$197.50; 37, \$215; 58, \$257; 70, \$265; 133, \$231; 142, \$199.

Class 73. One fully inclosed 7½ horse-power 220-volt electric motor—Bidder 15, \$260; 27, \$298; 37, \$250; 58, \$330; 70, \$307.50; 118, \$265; 133, \$209; 142, \$269.

Class 82. One improved speed lathe—Bidder 106, \$76.

Class 83. One patent disk sanding machine—Bidder 106, \$215.

#### Schedule No. 45.

Class 142. Four double cylinder single drum ship's winches—Bidder 5, \$2040; 71, \$2200; 84, \$2760; 149, \$2790.

The following bids were opened August 8 at the office of the chief Signal officer for motor generators:

Item 1, 20 ½-kw. motor generators; 2, four 1-kw. motor generators.

Crocker-Wheeler Company, Ampere, N. J.—Item 1, \$128 per set; 2, \$169 per set; time, 100 days.

Holtzer-Cabot Electric Company, Brookline, Mass.—Item 1, \$220; 2, \$256; first set in 30 days and three sets per week thereafter.

Eck Dynamo & Motor Works, Belleville, N. J.—Item 1, \$118.45; 2, \$157.10; delivery, 60 days.

Fort Wayne Electric Works, Fort Wayne, Ind.—Item 1, \$2152.60; 2, \$693.52; delivery, two sets per week, beginning five weeks after receipt of order; complete in 11 weeks.

Sprague Electric Company, New York—Item 1, \$132.75; 2, \$201; time, 50 days.

General Electric Company, Schenectady, N. Y.—Item 1, \$135; 2, \$207; item 1 in 95 days, 2 in 55 days.

Western Electric Company, New York—Item 1, \$233.36; 2, \$263.32; time, seven weeks.

National Electrical Supply Company, Washington, D. C.—Item 1, \$127.36; 2, \$167.05; time, 100 days.

Muralt & Co., New York—Item 1, \$258.50; 2, \$342.50; time, 90 days.

### British Standard Screw Threads and Pipe Threads.

Two recent reports issued by the Engineering Standards Committee of Great Britain relate to screw threads and pipe threads respectively. The former is Report No. 20, and details progress, but is not final. Inquiries made throughout the country demonstrate that the Whitworth thread meets general requirements. Hence the series of pitches originally formulated by Sir Joseph Whitworth are incorporated in Table I of this report. Still, in view of the almost unanimous opinion expressed by engineers, in response to the inquiries of the committee, that finer pitches are desirable in certain cases, Table II has been prepared containing particulars of "British Standard Fine Screw Threads." Further, to provide for the standardization of screw threads of less than ¼ inch diameter, the committee has adopted the dimensions recommended by the British Association Small-Screw Gauge Committee, particulars of these threads being given in Tables III and IV. One important point remaining to be settled is the best means of securing interchangeability between male and female screws.

Report No. 21, dealing with "British Standard Pipe Threads for Iron or Steel Pipes and Tubes," standardizes the dimensions of pipes and tubes and provides that the form of threads for pipes of copper, brass and other materials shall be the same as those for iron and steel; also that the same pitches be adopted where the outside diameters agree and the thickness of material permits. It is probable that a table will be issued later giving the dimensions of thin tubes for certain sizes. The chief feature of this report is the recommendation that the Whitworth form of thread be adopted, the feeling of the committee being that the advantages of the Sellers triangular thread—the United States standard—are not sufficiently obvious to justify its adoption in place of the rounded form advocated by Sir Joseph Whitworth. As far as possible the old Whitworth standard has been preserved up to 2¼-inch nominal bore, and in fixing gauge diameters for the larger screwing sizes the committee has borne in mind the desirability of making the outside diameters multiples of ¼ inch, the depth of thread in each case being approximately in accordance with Whitworth's rule—that is, 0.64 time the pitch. The findings published govern also the screwing of couplings and connectors and recommend the construction of standard gauges to be deposited with some recognized authority, such as the Board of Trade or the National Physical Laboratory, from which copies may be made for purposes of reference. The committee hopes that a general demand for uniformity will speedily result in the adoption of these standards by pipe makers who have hitherto used special threads of their own for some or all sizes of their manufactures.

### New York Pig Iron Warrant Market.

The sales in the Pig Iron Warrant market in the Produce Exchange during the week ending at noon on Wednesday amounted to 1200 tons. The transactions were as follows: 200 tons October, regular, \$15.20; 200 tons February, regular, \$15.40; 100 tons September, regular, \$15; 100 tons October, regular, \$15.15; 300 tons September, regular, \$15; 300 tons October, regular, \$15.10. The following prices were established on call Wednesday noon:

	Regular.		Foundry.	
	Bid.	Asked.	Bid.	Asked.
Cash .....	.....	.....	\$15.40	\$15.40
August .....	.....	.....	15.10	15.50
September .....	.....	.....	15.25	15.60
October .....	\$15.15	\$15.25	15.25	15.60
November .....	15.15	15.35	15.25	15.60
December .....	15.10	15.40	15.30	15.60
February .....	15.25	15.50	15.60	15.80

## New Publications.

**The Copper Handbook.** Volume V, 1905. Published by Horace J. Stevens, Houghton, Mich. \$5.

With patient industry Horace J. Stevens has gathered year after year an enormous mass of partly digested matter relating to the copper mines of the world. The fifth volume, prepared along the lines of preceding issues, has just been published. The great bulk of the work, and it is bulky, consists of a description of the copper mines collected from official reports, from newspaper clippings and from direct correspondence. These descriptions are particularly exhaustive in the case of the majority of the principal producing mines of this country. Mr. Stevens is occasionally a sharp critic, notably of financial methods, but, on the other hand, does not hesitate to bestow praise and to express confidence. The data industriously collected are very useful, and the book is handy, but we fancy since Mr. Stevens has won his spurs as a compiler he may be led in the future to develop the work along broader lines.

**Electrician's Handy Book.** By Prof. T. O'Connor Sloane, A.M., E.M., Ph.D. Publisher, the Norman W. Henley Publishing Company, New York. Size, 4½ x 6¾ inches. Pages, 761. Illustrations and diagrams, 556. Red leather binding and gilt edges. Price, \$3.50.

This is presented in pocket book style and aims to be a modern work of reference covering the field of electrical engineering. Among the subjects that it covers are the theory of the electric current and circuit, electro-chemistry, primary batteries, storage batteries, generation and utilization of electric power, alternating current, armature winding, dynamos and motors, motor generators, operation of the central station, switchboards, safety appliances, distribution of electric light and power, street mains, transformers, arc and incandescent lighting, electric measurements, photometry, electric railways, telephony, bell wiring, electroplating, electric heating, wireless telegraphy, &c.

As the title and subjects covered would indicate, the book has not been prepared for any special class, but instead appeals to the advanced electrical engineer as well as the practical electrician. The subject matter has been made as concise as is consistent with a clear and simple treatment and is logical in its sequence, so that the reader may be gradually introduced to the more difficult parts that follow. The first chapter, on the mathematics involved in electrical work, may be read with profit by any one. While the fundamental theories and descriptions of batteries and dynamos may not seem very essential to those who have been engaged in electrical work to any considerable extent, they are very speedily followed by matter that none but the expert would be expected to be familiar with. Civil and mechanical engineers have had their pocket books for a long time. It is a cause of gratification that there is now a reference book for the electrical engineers that, though somewhat different in character, will serve its field in a very acceptable manner.

**The Honorable Peter White.** By Ralph D. Williams, editor of the *Marine Review*. Pages, 205; 6¾ x 9 inches. Illustrations, 63. The Penton Publishing Company, Cleveland, Ohio.

The author of this most engaging book has chosen to recount the early development of the region on which the industrial supremacy of the United States is founded as intertwined with the fortunes of an individual. The career of Peter White so mingles in it the elements that have entered into the life of the Upper Peninsula of Michigan that Mr. Williams quickly saw the value of this unique personality to any literature dealing with the beginnings of iron mining in the Lake Superior region. Accordingly he has brought the personal factor prominently to the front, even at the risk of subordinating the history of a great movement to a life story of highly romantic quality. It was, in fact, the romance

of the Upper Lake region of 50 years ago that appealed to the author, and he has certainly succeeded in investing what is often a prosy recital of statistics with the fascination that grows out of human interest. Mr. Williams has an admirable style. He has reproduced some of the famous "Peter White stories" in proper dialect and at the same time, with strict regard to historical accuracy, he has detailed the painful way traveled by the pioneers of the iron mining and iron manufacturing industries of northern Michigan.

Naturally the first canal at Sault Ste. Marie, the semicentennial of which was recently celebrated, is one of the pivotal events dealt with, as is the taking of the first iron ore from the Marquette range. A prologue deals with the early history of Lake Superior, the discovery of copper and the discovery of iron ore. Of the 22 chapters of the story proper 15 deal with the "early trials and triumphs" features of Lake Superior history. Much of the narrative has been given piecemeal in various publications, but never with completeness or in sequence. Alternating with chapters from Peter White's life story are chapters on the early journeyings to the iron mines, on the founding of Marquette, the hauling of the first ore from Cleveland mine, the first lake shipment of ore, the first use of lake ore in Pennsylvania and Ohio furnaces, the shipping of Lake Superior before the first St. Mary's Canal, the construction of the canal, the building of a steam railroad to the mines and the early development of pig iron manufacture in the Upper Peninsula. Something of the state of the iron mining industry in the fifties may be gathered from this paragraph:

But what days of stress and turmoil they were. The Cleveland Company permanently abandoned the making of blooms when the forge [at Marquette, built by the Marquette Iron Company, which the Cleveland Iron Mining Company succeeded] burned down in December, 1853, and devoted itself to the mining and shipping of ore. There were approximately 1000 tons of ore on dock when the season of navigation opened in 1854. The winter had been a bad one for hauling the ore in sleighs [from the mine 14 miles inland]. The average load was a gross ton and only about 15 tons could be brought down per day. The tariff for the haul from the mine to the lake was \$3 per ton and the price of the ore on dock at Marquette was \$8 per ton. The cost of mining was 50 cents per ton—a magnificent profit, indeed, if any volume of business could be transacted. Nearly the whole of the 1000 tons of ore on dock when navigation opened in 1854 was taken by the Forest City Iron Company. It was wheeled aboard the propellers Sam Ward, Napoleon and Peninsula in barrows and dumped upon the deck. At the Sault it had to be unloaded and carried over the portage, where it was again wheeled upon vessels and taken to the lower lake ports.

Without attempting to bridge the gap between the early days and the amazing development in the Lake Superior region to-day the book presents a few chapters dealing with the modern lake marine, the discovery of the Mesaba range and its rapid advance to the head of the column as a producer of iron ore, the prodigious strides in the invention of machinery for handling ore and the building up of a steel making industry on the Canadian side of the Sault. Perhaps it would have been more in line with the narrative to have followed the development of the charcoal iron industry of the Upper Peninsula into the latter day furnace, with its attendant plant for the recovery of the by-products of charcoal manufacture. But, as a matter of fact, the book does not profess to be a complete history of Lake Superior industry. The author assuredly has made a book that will get an appreciative reading in that important circle of iron mining and vessel men to whom it especially appeals.

A. F. Baumgarten, Pittsburgh, has filed a petition in the courts asking for a receiver for the Maryland Rail Company, Cumberland, Md. In his petition Mr. Baumgarten alleges mismanagement. The company makes light rails and has a capacity of 150 tons a day when operating both its Maryland and Schonthal plants. The Maryland plant has not been active for some time, having been stopped by the bursting of the fly wheel. The company has a capital of \$75,000 and its indebtedness outside of its capital is said to be about \$100,000.

## New York.

NEW YORK, August 16, 1905.

**Pig Iron.**—Some good business has been closed during the past week both in this district and in New England. A slight tone of uncertainty has been introduced into the market, however, by the fact that a leading producer has apparently sought business somewhat eagerly. We quote: Northern Irons, at tidewater, \$16.50 to \$17 for No. 1 Foundry, \$15.75 to \$16.25 for No. 2 Foundry and \$15.25 to \$15.75 for No. 2 Plain. Southern Iron is selling on the basis of \$15.75 to \$16 for No. 2 Foundry, New York harbor.

**Steel Rails.**—The event of the week has been the placing of the Harriman order for 75,000 tons with the United States Steel Corporation. Light Rails are higher and \$23 at mill is now the minimum.

**Cast Iron Pipe.**—Few transactions of importance have recently come on the market. While the tonnage involved in individual orders is small, the aggregate business thus placed keeps the foundries far behind on deliveries. The Eastern foundries are in especially good shape. Prices on carload lots are continued at \$27 per net ton for 6-inch, at tidewater.

**Finished Iron and Steel.**—The contract for the Steel superstructure of the new Manhattan Bridge over the East River was awarded August 15 to the Pennsylvania Steel Company, whose bid was \$7,284,739. The other bidders were as follows: R. H. Hood Company, \$7,956,712; Milliken Brothers, \$7,983,970; John Pierce, \$7,486,491, and the King Bridge Company, \$9,312,940. The contract calls exclusively for acid Steel in all the rolled sections, and is probably the largest of its kind ever placed, requiring 43,937 tons, inclusive of 5436 tons of wire cables and 2232 tons of Steel Castings. A great deal of business is in sight in the Structural line for next month, but current contracting for bridges and buildings is not active. The American Bridge Company is at present taking orders at the rate of about 5000 tons per week, consisting of an accumulation of small quantities. The prospective business for the fall runs most heavily into building work, but includes quite a proportion of bridges. Among the inquiries for Steel structures is one from the Utah Copper Company, Salt Lake City, calling for buildings involving about 4000 tons of Structural Shapes. The Plate business in this vicinity shows increasing activity. Some contracting is now being done by large consumers, who are more freely disposed to cover their requirements for the remainder of the year. Some good tonnages have been entered on this account the past week. The Bar trade is likewise looking up, with inquiries for large quantities coming from buyers whose contracts recently expired. It is likely that some important business of this nature will soon be closed. Sellers of Bars are looking forward to a very heavy business during the fall months. Quotations, at tidewater, for shipments from mills are as follows: Beams, Channels, Angles and Zees, 1.74½c. to 1.84½c.; Tees, 1.79½c. to 1.89½c.; Bulbs, Angles and Deck Beams, 1.84½c. to 1.94½c.; Sheared Tank Plates, 1.74½c. to 1.84½c.; Flange Plates, 1.84½c. to 1.94½c.; Marine, 1.94½c. to 2.04½c.; Fire Box, 1.94½c. to 2.50c., according to specifications; Refined Bar Iron, 1.64½c. to 1.74½c.; Soft Steel Bars, 1.64½c. to 1.74½c.

**Old Material.**—The feature of the week has been the very greatly increased demand for Cast Scrap and Stove Plate. Foundrymen have evidently been diverted to the Scrap market by the general firmness of Pig Iron. Some of the inquiries now in hand call for quite large quantities, running as high as 2000 tons. Some buying of rolling mill stock is noted, but this demand is of a scattering character. Steel Scrap appears quite neglected. Inquiries are nevertheless being received for all classes of Old Material from a variety of consumers, and the prospects for a large trade in the near future are regarded as very promising. Quotations for New York and vicinity are approximately as follows, in gross tons:

Old Iron Rails.....	\$17.00 to \$18.00
Old Steel Rails, rerolling lengths.....	14.50 to 15.50
Old Steel Rails, short pieces.....	13.75 to 14.75
Relaying Rails.....	19.50 to 20.50
Old Car Wheels.....	16.00 to 17.00
Old Iron Car Axles.....	19.00 to 20.00
Old Steel Car Axles.....	17.00 to 18.00
Heavy Melting Steel Scrap.....	13.75 to 14.75
No. 1 Railroad Wrought.....	16.00 to 17.00
No. 1 Yard Wrought.....	14.00 to 15.00
Iron Track Scrap.....	13.50 to 14.50
Wrought Pipe.....	11.50 to 12.50
Ordinary Light Iron.....	9.00 to 10.00
Cast Borings.....	7.50 to 8.50
Wrought Turnings.....	10.50 to 11.50
No. 1 Machinery Cast.....	13.75 to 14.75
Stove Plate.....	10.50 to 11.50

Members of the Canadian Association of Manufacturers have been complaining from time to time that goods of German, French and other foreign origin were being imported into Canada from Great Britain and thereby defeating the objects of both the antidumping clause and the preferential Tariff. It is recommended that the

Government should extend its system of customs inspectors by appointing one or more to the United Kingdom who shall have the same duties as the inspectors now located in New York and elsewhere.

## Metal Market.

NEW YORK, August 16, 1905.

**Pig Tin.**—The market during the week has been rather quiet, although partaking of a firmer tone than that which characterized it the first part of the month. While there have been free offerings by both first and second hands, a disposition developing to dispose of holdings and thus escape expense of storage and carrying charges, the closing prices for spot and August were 32.55c. to 32.85c. It sold freely at 32.62½c. from dock. September is quoted at 32.37½c. to 32.75c. The London market has shown a somewhat firmer tone than previously reported, the recovery having been equivalent to practically £1, the price for spot being £149 15s. and £149 for three months' delivery. The arrivals thus far the present month have amounted to 1740 tons and there are afloat for American ports 2335 tons.

**Copper.**—The swing of the pendulum continues to be upward, the market maintaining a very firm tone on account of a good consumptive demand and gratifying exports. While the tendency is toward still higher figures, it is felt that producers are somewhat opposed to further advance. This perhaps may be due in part to the report that some have disposed of their output for the rest of the year and in certain cases are said to be refusing to sell to any except regular customers. The closing quotation for Lake Copper and Electrolytic is 15.87½c. to 16c., with supplies limited at anything under the latter figure. Casting grades are quoted at 15.25c. to 15.50c. The exports thus far the present month have amounted to 10,927 tons. The London market has reflected the firmer tone here and quotations are £69 5s. for both spot and futures, while Best Selected has advanced to £74 5s.

**Pig Lead.**—There is very little to be said about the market for Pig Lead, as quotations are unchanged from last week, the quotation being 4.60c. to 4.70c. It is barely possible that something of interest may develop at the meeting of the National Lead Company, to be held this afternoon. In St. Louis the market shows a firm tone, and is quoted at 4.60c. to 4.62½c. The London market is somewhat firmer with prices a shade higher, the quotation being £13 18s. 9d.

**Spelter.**—The situation contains little of note, and quotations remain unchanged from a week ago, being held at 5.70c. to 5.80c., with St. Louis quotations at 5.65c. to 5.70c. The market may be described as firm. London figures show a 5 shilling advance over last week, the quotations being £24 12s. 6d.

**Antimony.**—While the market continues quiet the metal is held at fairly firm prices, quotations for Cookson's being practically nominal. Hallett's can be obtained at figures ranging from 14.50c. to 15.50c., with other grades at 13.50c. to 14.50c.

**Quicksilver.**—A quiet but steady tone pervades the market and prices are \$40.50 per flask of 75 pounds in 100-flask lots. The London market remains about as last quoted, both Rothschild's and second hands selling at £7 7s. 6d.

**Nickel.**—There is a fair business doing in both round and small lots, but prices are the same as last quoted, with stocks on hand sufficient to meet current requirements. Large lots can be had at 40c. to 45c. per lb.

**Tin Plate.**—Much the same conditions have prevailed in the Tin Plate market as those last reported and quotations remain unchanged at \$3.74 a box of 100 lbs. IC Coke Plates, f.o.b. New York, or \$3.55, f.o.b. Pittsburgh. In Swansea Welsh Plates remain unchanged at previous quotations, 11 shillings 7½ pence.

The American Iron and Steel Association has canvassed the blast furnace situation and finds that since December 31 there have been added to the active blast furnaces of the country one new charcoal and seven new coke stacks, with a total annual capacity of 926,500 tons of pig iron, of which 29,000 tons were charcoal, and that seven furnaces have been retired by abandonment and dismantlement, with a total annual capacity of 178,000 tons. This is a gain in furnaces of but one stack, but a gain in capacity of 748,500 tons. There are also eleven furnaces in process of building or reconstruction which will have a combined annual capacity of about 1,033,000 tons. Possibly five of these furnaces, with an annual capacity of about 303,000 tons, will be ready for blast before the close of the year.

Frank S. Witherbee of Witherbee, Sherman & Co., Port Henry, N. Y., has gone abroad until early in October.

## The Exhaustion of the World's Iron Ore Supplies.

The extent to which our civilizations have become dependent on the mineral resources of the earth for their support or advancement and the question how long the sphere is likely to respond to the tremendous tax upon its stores which the increasing numbers of mankind and their ever growing demands are certain to impose form the theme of a highly interesting inquiry in the *International Quarterly* by Prof. N. S. Shaler, the eminent geologist of Harvard University. The inquiry extends to a number of important metals of which the supply is determinable within certain limits, such as gold, lead, tin, zinc, mercury and platinum; but the writer pays more attention to iron and copper than to all the other metals. We present a general outline of the discussion.

### The Importance of Iron and Copper.

Of the supply of metallic substances needed for the generation and application of power there are two in the present state of our arts of cardinal importance—viz., iron and copper—half a dozen of secondary yet great utility—lead, zinc, tin, mercury, gold and silver—and a number of others which, though most useful in the arts, do not materially affect the course of civilization. If any of these metals except iron and copper, were by some accident to be transmuted to-morrow it would be temporarily most inconvenient, but the world would soon adjust itself to the loss. But with copper, and in a greater degree with iron, it is far otherwise. Our whole civilization, indeed, may be said to be built on iron. Infinitely more than any other metal iron and steel afford the combination of qualities needed in the application of power. Iron is at once hard, rigid, flexible, tough; it may be forged or cast in molds and may be worked up into an engine shaft, a surgical instrument or a watch spring. Its cheapness, too, is a considerable element of its value to man. Its average cost at the present time is about one-twentieth of the cost of the bronze that belonged to earlier civilizations. It is doubtful if the Roman culture and conquests could have been accomplished without the use of iron, and it is certain that our modern States, so far as they depend on their command of energy, could not have developed and perhaps cannot be maintained without the use of iron or some other metal fitted to serve in acquiring and applying power.

If we had now to reorganize our world on the basis of iron at the ancient or even the lower modern cost of bronze we should have to abandon much that is considered necessary to our economic life. Most of our railroads and steamships would be too costly for the services they render, great and seemingly indispensable as these are. A like reduction would have to be made in all the instruments with which we attack the resources of the earth, those of the soil as well as those of the mine. Such a change would shear off a very large part of our comforts and luxuries, and even of our necessities, and we should be obliged to readjust ourselves to vastly different conditions. Is such a need of readjustment to be reckoned on in the centuries to come?

### The Sources of Supply.

Iron is a very widely distributed element. In combination with oxygen and other substances it is found in most rocks. It is often stated that it must superabound in the deeper parts of the sphere, but the volcanic materials which presumably come from at least 50 miles below the surface, though they contain iron, do not indicate that the interior is particularly ferriferous, and although there are probably instances where beds or veins of iron ores may be found at the deepest levels at which we may hope to win them at practicable cost, it may be assumed that the supply will have to come from less than a mile below the surface. Iron oxides undergo a continuous process of dissolving in water containing  $\text{CO}_2$  and are thereby diminished in the soil or porous rocks and concentrated in the lower strata. These processes of concentration in most instances are limited to the levels where the rain water has a chance to penetrate, usually much less than

a half mile down. Though the available iron ores are thus limited as to depth, their generally bedded nature and their great horizontal extension which comes from this arrangement afford an abundance of the material found in no other metalliferous deposits sought by the miner. The amount of these iron ores still available is very great, perhaps 20 times as great as has been won to use. Yet some of the best known fields are beginning to be exhausted. Great Britain has practically consumed its store. Practically all the supply for its furnaces is now imported. [This last statement of Professor Shaler is far from the fact. The production of iron ore in Great Britain in 1904 was 13,774,282 tons, while the imports were 6,100,756 tons.—Ed.] The supply from the Mediterranean, that promised to be inexhaustible, cannot endure for many decades to come. The same is the condition of the ore districts of central Europe. At the rate of the increasing demand they are not likely to meet the requirements of 100 years. There remain extensive deposits of rich ores in the Scandinavian peninsula and in fields on the confines of Belgium and France which have hardly yet been drawn upon, but it is evident that at the present rate of increase of consumption of iron the European sources of supply are not likely to endure for a century. [The ores to which reference is doubtless made here are the extensive Minette ores of Luxemburg, Lorraine and France. Only the fringe of the deposit extends over the Belgian border.—Ed.]

### The Deposits of North America.

In North America the conditions are somewhat more promising. In the region east of the Appalachians the original rather scanty stores of the metal have, save in Nova Scotia, proved unprofitable sources of supply. On the Pacific Slope it appears unlikely that the deposits have any considerable value in relation to the world supply. In the central district of the Cordilleras of North America such evidence as has been gathered indicates the presence of considerable bodies of iron ore, but most of them are too far removed from coal of a quality suitable for smelting. The best placed field for the production of iron in North America is in the central section of the Mississippi Valley. It is a question, however, if even this rich field will long supply the insatiable demands of the world for iron. When, some 20 years ago, the ores in the region of Lake Superior began to be extensively developed it was generally believed that this field was practically inexhaustible. But at the present time good judges are reckoning the longevity of these mines by decades. A similar story is to be told concerning the ores south of the Ohio. The expectations concerning the Clinton field of the South, which seemed to be inexhaustible, have to be greatly reduced. Resources which were expected to endure for centuries cannot safely be reckoned on for more than 50 years. Experience has shown that as soon as the workings are extended much below the zone of movement of the rain water the beds are found in their original condition of limestones, so that in place of a workable belt of some miles in width the limit of profit was found within a few thousand feet of the surface. Nor is it likely that within the United States any new fields of notable value remain to be discovered. It is a fact that all the iron fields of this country of sufficient importance to have a wide reaching effect have been known for 30 years or more. Later knowledge has done no more than define their bounds.

In other countries the only known field which promises a yield of general importance is that in China, where over a wide area there is evidence of iron ores, along with good coal for smelting and under conditions of climate and labor which promise a cheaper product than has been obtained in any other place. As for the other parts of Asia and the continents of Australia, Africa and South America, relatively little is known of their resources in iron ores, but owing to the lack of coal deposits the ores cannot be made to produce iron, except at much higher prices than now hold.

Professor Shaler thinks it may therefore fairly be assumed that beyond the present century the world as a whole will not have access to the metal at anything

like the present cost in terms of labor which prevail at present.

#### Iron as a Precious Metal.

It is not to be supposed that the iron age will suddenly pass away; its passage, doubtless, will be gradual. The deposits other than those of China which can produce iron at the present low labor cost will almost certainly be exhausted within 100 years. Those of China may last for a similar period after they become the center of a large industry. Then the cost of production will gradually increase as the lower grade ores and those remote from coal come into use. Later we shall have to resort to concentrating processes to separate the iron ore from the rock in which it is disseminated as grains. Finally, it may be some centuries hence, but surely, the world will be forced to an economy in the use of the metal such as was exercised 200 years ago. There exists a considerable leeway in the case of iron in the saving that will be made in scrap material as soon as the price rises to, say, \$50 a ton. In the case of copper, because of the present relatively high price, about \$200 a ton, there is no savable loss. In this stage, when it again becomes a precious metal, iron may continue to be the helper of man for an indefinite period, but its power for help will be greatly diminished.

In the case of copper the sources of supply are very much rarer than those of iron and the total amount of the metal in the crust of the earth is probably not the thousandth part of that of iron. Its supply will doubtless be reduced to a point where its service to the arts will be seriously limited before there is a like reduction in the supply of iron. But we can look upon the approaching exhaustion of the sources of copper with less apprehension than in the case of iron, for the reason that, useful as the metal is in manifold ways, it is not indispensable or even very necessary in our arts except in the transmission of electric power, and even in that substitution is possible.

#### Aluminum as a Substitute.

In its qualities aluminum is admirably adapted to serve most of the needs now served by iron and copper. It is relatively very light, but for its weight admirably strong, rigid, tough and elastic; it is a good conductor of electricity, and it does not oxidize or rust as readily as iron or copper. Indeed, there is good reason for believing that an aluminum age would carry us as far beyond that of iron as we advanced when that metal superseded bronze in the mechanic arts. The amount of aluminum lying almost at the surface of the earth's crust is enormous, probably many thousands of times as great as the amount of iron contained in the concentrated form of beds or veins. Aluminum is found in the form of silicates, the base of all clays and of the felspars from which they are mainly derived, as well as of many other common mineral species. Every clay bank is therefore a possible source of the metal. But before it can be put to the uses of man its union with silicon has to be broken up, as it is never found in the metallic or unoxidized state. So powerful and persistent is the grip which the atoms of aluminum and those of silicon have upon each other that the work of separating them is very costly. A great deal of experiment has been made with the object of cheapening the process of separation, and indeed within 50 years the price of aluminum has been reduced about 90 per cent. But still the work of separation has practically to be done in electric furnaces on a small scale and with steps that entail a large amount of labor. He would be a confident man who on the basis of computation looked forward to a time when aluminum could be economically produced on a large scale for less than \$200 per ton. Moreover, we do not yet know how to win the aluminum ores from ordinary clays. Thus, with any methods now conceivable we have to reckon that while aluminum is likely in time to take the dominant place now held by iron it will do so at a cost in terms of labor far higher than what men now pay for their capital metal. Nevertheless the difference is not likely to be so great as to prevent aluminum from coming to the rescue of the mechanical foundations of our economic civilization.

The above fairly presents Professor Shaler's argument, which covers about eighteen pages of the *International Quarterly*. One factor generally underestimated by writers who discuss the world's iron ore supply from the standpoint of its limitations is the constantly increasing supply of old material coming back to the iron industry. If we are constantly increasing our drain upon iron mines, we are also adding steadily to that great surface supply whose primary service is in the form in which the mills have fashioned it for the uses of civilization. Ultimately much of it will return to the melting furnace, and thus the circuit will be repeated indefinitely. We have scarcely begun to get returns from this great scrap supply at anything like the rate at which it has been stored up in the age of steel.

#### A Method of Utilizing Flue Dust.

The problem of blast furnace flue dust is one that has busied furnace managers for a number of years, and its proper solution has become a matter of increasing moment as the percentages of Mesaba ores used in furnaces drawing their supply from the Lake Superior region have grown larger. The difficulty has been to get the flue dust in shape to be utilized in the furnace and at the same time have the mass permeable by the blast and gases as the recharged ore descends with the furnace burden. The drawback of flue dust is not only that it is ordinarily so much ore wasted, 6 per cent. and more in some cases of the original burden, but the management is put to the expense of removing it from the dust catcher, flues and passages and hauling it away. Where the flue dust has been simply wetted and recharged the rush of gases carries most of it out again into the flues.

Charles S. Price, general manager of the Cambria Steel Company, Johnstown, Pa., has devised and patented a method of utilizing flue dust by putting it at small expense into such form that when charged into the furnace it will be reduced and not blown out again. The procedure is to mix the flue dust thoroughly with a small portion of clay in a pug mill. The mixture is moistened with water and formed into bricks or lumps in an ordinary Auger brick machine. The clay may be in lumps, but at the Cambria furnaces ground clay is used. It is found that when the clay and flue dust mixture is made into plastic lumps by the addition of water it may be charged directly into the furnace without going to the expense of molding it or drying it in an oven. The best proportions are shown by experience to be four parts of flue dust and one of clay. The inventor says that "the amount of clay, which is exceedingly small compared with the total charge of the furnace, is useful in serving to increase the quantity or regulate the quality of cinder, as required in many cases, and it is much easier to smelt than the lean ores which are sometimes used for the same purpose, as will readily be understood by those skilled in the art of smelting ores. The clay being a silicate of alumina contains more silica than alumina, and a quality that I have found satisfactory contains about 62 per cent. of  $\text{SiO}_2$  and 18 per cent. of  $\text{Al}_2\text{O}_3$ , with moisture and a few other substances. Furthermore, the clay does not injure the lining of the furnace, nor does it produce any other deleterious effects, while the saving in ore cost more than offsets the extra cost of coke and limestone required to smelt the added clay."

It is stated that the process has been used with success at the furnaces of the Cambria Steel Company for the past two years and that various blast furnace managers have investigated it with a view to its adoption. Mr. Price claims the applicability of the process to the treatment of fine ores as well as flue dust.

It is stated on very good authority that the Republic Iron & Steel Company is making plans for the building of large rod, wire and wire nail mills at Youngstown, Ohio. The new plants will be located on property recently bought in the east end of the city.

# HARDWARE.

OUR readers engaged in the retail Hardware trade will undoubtedly be much interested in the statement that the Michigan Association has more than doubled its membership within the past year. The reports which have been published of meetings of retail associations this year have almost uniformly shown gratifying gain in membership. The movement toward organization in the retail Hardware trade is thus seen to be making continued progress. It had been supposed by some connected with the trade that the movement was a little too rapid at first and that in the course of time the interest would diminish. This was especially apprehended by those who could not see immediate indications of beneficial effects resulting from the organization of retail merchants. Many expected too much to develop quickly from the mere fact of men in this branch of trade beginning to get together. That the associations are growing instead of declining may be taken as strong evidence that the trade regards the work so far done worthy of support.

The growth in the membership of the now numerous retail Hardware associations, has been brought about by various causes. In some States the organization movement seems to have had sufficient impetus from the very beginning to continue its development without the application of stimulating methods. In other instances, however, great growth has been induced through the employment of well-informed solicitors who have made personal visits to merchants throughout a State and succeeded admirably in persuading them to enroll themselves as active members. In several States a great deal has been accomplished through the combination of mutual insurance with the State Hardware association. Not only have many joined to get the benefit of cheaper insurance, but the representatives of the insurance association, having thus been brought into contact with merchants throughout the State, have had opportunities to solicit additional membership. Personal solicitation counts in this as in any other line of human activity. Further, a very great deal of energy has been imparted to the cause of organization by the untiring efforts of the officers of the National Association. Secretary Corey has been a recognized power in this respect, and too much credit cannot be given to him for what he has done. President Bogardus has shown special capacity for his work, being in evidence at so many meetings of retail associations, making forceful and convincing addresses, abounding with practical suggestions, that to him must be ascribed much of the enthusiasm felt throughout the ranks of those who are connected with these organizations. The members take a just pride in the ability and dignity with which he has represented them before other bodies. Without the inspiring activity of President Bogardus the progress made would not have been so great. He has been a tower of strength and bids fair to make the influence of his organization felt much more seriously.

The spread of the organization movement to an increased number of States and the great growth in the membership of associations already established have combined to increase very considerably the influence of the associated retail merchants. When such organizations were confined to only a few States and the membership in each State was small, scant attention was paid to such action as was taken relative to troublesome interferences with their business. With the enhancement in their numbers and the spread of the movement to practically all sections of the country, a complaint in

the name of the great body receives very respectful consideration. Increased respect will be given as numbers further increase if the leadership continues in the hands of men of sound judgment.

## Condition of Trade.

Trade conditions in general are most favorable, with a tendency to an increase in the volume of business as the season progresses. Activity is not confined to any special lines, fall and winter goods sharing the demand with seasonable goods for current requirements. Orders received by jobbers are for both large and small quantities, and the working forces, now depleted by the vacation period, are hard pressed to make satisfactory shipments. An excellent feeling exists among manufacturers, most of whom are well supplied with orders, while some are obliged to exert themselves to keep up with the demand.

### Chicago.

Word is being passed along that an advance will soon be announced on Nails and the whole Wire list. Prices have been weak so long, however, that, as far as can be learned, buying is not being stimulated by this declaration. Sheet Zinc has been advanced another 25 cents, making the present base \$7.50 at La Salle, Ill. The high price of Spelter and the firmness of Sheet Bars are lending a strong tone to Galvanized Sheets, and particularly to Eaves Trough, Conductor Pipe and other staples and specialties made from Galvanized Sheets. Thus far, however, the price of the Sheets themselves has not advanced. Fall trade in Pipe, Elbows, Stove Boards, Scoops, Shovels, Spades, Axes, Lanterns, Corn Knives, Huskers and autumn and winter goods generally is brisk, but supplies are ample for all requirements and business is being done along normal lines. Builders' Hardware sees no diminution in demand. Contracts aggregating nearly \$10,000 have just been placed for Hardware for the Borland and Majestic buildings, but details are not yet forthcoming. Demand for machinists' and carpenters' tools and supplies is better than it has been for several years. A very large tonnage of Binder Twine went into the harvest of winter wheat, rye and oats and prospects are that the spring wheat crop of the Northwest will call for an unusually large quantity of Twine. The widespread introduction of Corn Binders leads to a large annual increase in consumption of Twine for the corn crop, and with a crop of 2,700,000,000 bushels of corn now maturing there is prospect of an exceptionally heavy demand for Twine for this purpose. While reports from the East indicate an improved condition in the Nut and Bolt market, the business in these lines in the West is demoralized, with no attempt to maintain association prices. This is an anomalous condition of affairs at a time when the consumptive demand is so great as to deplete existing stocks, both at mill and jobbers' store. It is thought that a radical change in this unsatisfactory condition will be brought about in the near future.

### St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—Notwithstanding the interruption to business in Louisiana and in bordering States on account of yellow fever and the rigid quarantines enforced, the volume of business as a whole is satisfactory. A noticeable increase in the number of mail orders is an indication of low stocks in the hands of retail merchants and a pressing demand from consumers.

Several months ago this house offered to assist retail merchants to compete with catalogue houses under certain conditions. Our proposition has been so much exaggerated and misinterpreted that we take this opportunity to state just what it was:

We have told our customers that when they come in competition with any of the catalogue houses on a specific item or for a certain bill of goods if they would send

us such orders, giving the name of the catalogue house with which they were competing, the number of the catalogue and enter the goods on their orders by the numbers and descriptions in such catalogues, we would fill these orders and would bill the goods at prices which would afford them a profit of at least 20 per cent. on the catalogue house prices. It was provided, however, such prices were not for stock, and that in those cases where manufacturers sell their goods on the restricted price plan we could not always do this.

We have received many orders and have executed them upon the above basis, and in doing so we have done only what should be expected of us in helping our customers meet this competition, even if sometimes our profit account has had a rather ragged appearance.

In some cases, on certain restricted lines, we could not help the retail merchant for obvious reasons. In other cases retail merchants sent us orders for large quantities, evidently for stock, of certain goods the catalogue houses price as leaders. It was not our idea nor our offer to protect a retail merchant's stock on such goods. It is our plan if a customer comes to a retail merchant with a list of certain goods he desires to do what we can to put the retail merchant in a position to take such specific orders and make a profit of 20 per cent. on the transaction.

We believe it is the duty of every jobber to protect his customers in this manner. We believe retail merchants have a right to expect such protection from the jobbers from whom they are drawing their supplies. We have found very few instances where retail merchants have shown a disposition to distort and take unfair advantage of our proposition. We believe if all Hardware jobbers would make this offer, and if the head of the house would have each case referred to him and have his buyer lay before him the actual cost and the price offered on the same goods by the catalogue house, this jobber would derive more benefit from the knowledge he would gain than he would lose in profits by reason of such transactions.

Of course in a number of cases such investigations will lead to the discovery that the catalogue houses are selling inferior or defective goods, and the jobber will be asked to compete with such goods with a first-class article. When, however, this information is gained it puts the jobber in position in the next instance to inform his customer of the exact class of goods with which he is competing, and when he fills the order with first-class articles the retail merchant can make this a point in selling the goods to the consumer. Besides such information leads the retail merchant to have more respect for the jobbing trade in general and to know the arguments to use in future cases in competing with catalogue houses on such goods. We also believe if jobbing buyers will properly use the information brought to their attention by this class of orders they can probably in many instances make more favorable arrangements with the manufacturers on these lines of goods.

To sum up the whole matter, for a long time this house did not know just what the catalogue houses were doing in the way of making prices; we were not posted on the lines of goods they carried. We have since become posted on their prices, we have become fairly well acquainted with the lines they are selling, and we take the liberty of saying if other jobbers will study the catalogues of catalogue houses and find out where they are strong and where they are weak, inspired with a sincere desire to help their retail customers, these jobbers will gain by the information so gathered a great deal more than the time and trouble such investigations cost. Such at least has been our experience in our various departments.

#### Cleveland.

THE W. BINGHAM COMPANY.—There is every prospect of bumper crops throughout the land, especially in the Middle and Western States, and if they materialize the farmers will be rich, and they are going to spend their money enlarging their barns and storehouses. It is a fact that when money is cheap and plenty our wants in all commodities increase. Just think of the money the farmers are going to have to spend in Ohio alone!

The estimated Ohio crop of corn is 95,000,000 bushels; of wheat, 28,000,000 bushels, and of oats, 32,000,000 bushels. So much money abroad in the land makes us think we ought to mark up our prices, for certainly Hardware in all lines, especially in staples just now, is very cheap.

A large tonnage of Nails and Wire, Plates and Pipe is going forward at the present time. There is an immense consumption of these materials. Builders' Hardware is in great demand and the different varieties and kinds that the jobbers offer now are so low in price and fine and handsome in quality that the trade is buying and is going to buy liberally, and we are going to have a good big trade this fall. Orders are coming in for larger and better assortments than heretofore.

There is a lot of roofing material going forward both in black and galvanized sheets, also painted, galvanized, corrugated and crimped sheets and roofing plate, indicating that there are many buildings that must be covered before the fall season closes. Salesmen are returning from their vacations and are sending in many well assorted orders. Trade on the whole in all lines is quite satisfactory.

#### Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—The all disturbing factor in the Southern country at present is the yellow fever. It has led to most stringent regulations and every time that a shotgun goes out of stock to that part of the country we have a faint suspicion that it may be used by guards on the frontier railway stations or at interstate meetings, where the Governors of Mississippi and Louisiana find it a very short time between rhetorical drinks, or possibly accompany the militia to a naval demonstration on Lake Borgne. If the cause were not so serious and panic breeding it would be something to smile at and smile over, but somehow we cannot.

The fact that it has appeared so early in the season is most disturbing, for it is a long way off till Jack Frost comes in to play his part against Yellow Jack. Traveling men have been much hampered in their operations and in many cases they have had to be withdrawn, and stories of very great hardships on travelers are reported. Mothers with young children do not escape the bayonet threats of the guards on the railways. It sounds like a chapter out of the Middle Ages. If all the Governors of the States would agree to let the Washington authorities regulate the whole business we believe that confidence would be restored and uniformity of regulation exercised.

This is about the only disturbing factor in the situation. Business is in large proportions and promises to continue so. Prices are stiffening, and there is little doubt that the great production, whether of field or factory, will be needed for the vast army of consumers who are earning and spending throughout the length and breadth of the land at all seasons.

#### San Francisco.

PACIFIC HARDWARE & STEEL COMPANY.—It was the writer's intention when he started to dictate these lines to give you the usual outline of trade conditions. It seems, however, that only one topic comes constantly to the front, so that the only thing that suggests itself is the moving of the offices and stock of this company to its new building at the corner of Seventh and Townsend streets.

We have been busily engaged in transporting an assortment of goods from our various departments for some two weeks, and at this writing are in the midst of the final rush, with the determination of closing business in the old premises on Saturday night and starting out full blast in the new on Monday morning. The task involves not only the moving of our offices, but also a scattered stock from several locations into a new building in an entirely new district on the railroad tracks. It is somewhat of a task to get things promptly started, particularly so in a building three stories and basement, covering 264 by 275 feet, but we shall have everything in shape by next Monday morning, the 14th inst., to transact all our business in the new quarters and without a day's interruption. To those who have been through such an experience it is no doubt easy to understand that this is the all absorbing topic and that everything else is of minor

importance and must be brushed aside if we are to carry out our resolutions.

It must therefore suffice at this time that we advise you that business is extremely good in spite of the somewhat unfavorable crop conditions. Collections, as usual at this time of the year, are somewhat slow, but, on the whole, prospects were never better.

#### St. Paul.

FARWELL, OZMUN, KIRK & Co.—Trade conditions are in excellent shape in the Northwest. All crops have come on finely during the last thirty days and harvest is now on. There is a good crop of wheat and of all other small grains, including flax. Haying is also well along, excepting in the low lands. It is very seldom that any section of country is favored with better conditions for maturing of the crops than have been experienced in the Northwest for the last five or six weeks. It has really been almost ideal weather, with the exception of a few hailstorms, from which we always expect some damage and have probably had less damage thus far this year than usual. The wheat harvest has begun well on up to the line of Fargo and Jamestown and by the 20th will be in full swing pretty nearly to the northern boundary of the State.

With favorable weather for harvesting, stacking and threshing the Northwest will be in very fine shape and the fall trade will necessarily be very satisfactory. We have not known a year for a long time in which there have been as few drawbacks to the general conditions of prosperity as we may now expect to have before us if the crops can be harvested satisfactorily. Stacking and threshing are now in progress in the southern part of this State and in South Dakota and the weather continues fine for the work.

#### Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—We regret to report that business conditions in the South are not encouraging at present. In most sections there was entirely too much rain during July and the first of August, and now the yellow fever in Louisiana is having its effect upon trade. Most of the traveling men who work in Louisiana and Mississippi and portions of southern Alabama and Georgia have abandoned the road, as the quarantine laws prevent them from traveling, and, besides, the merchants in these sections do not feel inclined to make any purchases until the situation shows some improvement.

This condition of affairs applies mostly to the extreme South, as the city of Nashville is enjoying more prosperity than at this time last year, or, in fact, any year. The bank clearings show a large increase, also the real estate transfers, and building permits are running away ahead of last year at this time. All the manufacturing plants are working to their full capacity and labor is well employed and receiving liberal wages.

The amount of building and construction work going on in this city and suburbs is the greatest ever known. In addition to the large structures such as office buildings, business houses, public buildings and handsome residences a great many small houses and buildings of various kinds are being erected.

#### Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—Considering the fact that the month of August is passing, one of the duller usually of the year, there is little or no complaint of poor trade. While there is no rush on, all seem to be comfortably busy and look forward complacently to a good fall business.

The weather so far has been favorable to a successful harvest and prices for all farm products bid fair to be all that could be wished for to make farming operations a profitable industry. If the lumber market would take on some of its old time animation our cup would be full to overflowing in the Pacific Northwest.

The attendance at the Lewis and Clark Exposition passed the million mark last week. As the two biggest months, August and September, are yet to come, the management is assured of an attendance far ahead of

what they expected when the Exposition was first planned.

#### Philadelphia

SUPPLEE HARDWARE COMPANY.—Market conditions are good, trade continues fairly active, with a good volume of orders, and collections fair considering the season. Reports from our various representatives would indicate a good fall trade; indeed, we can see no reason why the volume of trade should not very materially increase between now and the holiday season. We are receiving many inquiries for season goods and are looking for an increased volume of trade over the same period of last year. Our Southern representatives report good conditions in that section of the country. On the whole, we think the outlook is very encouraging for a continuance of the same excellent conditions and tendencies which have existed for the past two or three weeks, and we can see no reason why trade should not increase over that of the past year.

#### Omaha.

LEE-GLASS-ANDRESEN HARDWARE COMPANY.—The month of August is seldom marked by any special activity in jobbing circles, but the past two weeks have been an exception. The volume of business still continues large in most lines. Continued warm weather has done wonders for the corn crop, and everybody is predicting a bumper yield. Good crops are always desirable, and with another abundant harvest Nebraska will be placed in an enviable position that will make her noteworthy as one of the most prosperous States in the Union. The splendid crops of the past and the very favorable outlook for the coming corn crop promise to develop a healthy volume of business during the fall months.

### NOTES ON PRICES.

**Wire Nails.**—The recent agreement of manufacturers to maintain prices and the curtailment of production are having a beneficial effect on the market. The demand is of fair volume and of about the usual amount for the season. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads to jobbers.....	\$1.80
Carloads to retailers.....	1.85

**New York.**—The amount of business done by local jobbers so far this month is ahead of the same period of July. That stocks are low in retailers' hands is shown by requests for prompt shipments. Quite a number of contracts have been booked from points tributary to this market for shipment during August and September. Quotations are on the basis of \$1.95 to \$2 for small lots from store.

**Chicago.**—Official prices are still named as given below, subject to the conditions prevailing for some time—namely, that large jobbers and railroads have been able to secure concessions. Salesmen of the leading producer are now advising their customers to cover promptly, as an advance is scheduled for the near future. Official prices are on the basis of \$1.95 in car lots to jobbers, \$2 in car lots to retailers, with 5 cents advance for less than car lots from mill. Price from jobbers' store in small lots is unchanged at \$2 to \$2.05, base.

**Pittsburgh.**—The tone of the Wire Nail market is firmer than for some time, due to the recent action of the mills in agreeing to strictly maintain prices. The demand is about as usual for this season of the year, being of fair volume, while stocks held by jobbers are pretty well worked off, this being indicated by the fact that orders usually specify prompt shipment. The Wire Nail mills are curtailing output to meet actual demands, believing this is better policy than trying to stimulate trade by reducing prices. We quote Wire Nails at \$1.80 in carloads to jobbers, f.o.b. Pittsburgh, plus actual freight to point of delivery.

**Cut Nails.**—While the demand is light as a general rule, some mills have taken contracts for all the Nails they can comfortably turn out in the near future. Low

prices have proved attractive to buyers in some cases, as the market for raw material shows no indications of weakening. The market for Nails, however, is irregular, and quotations range from \$1.00 to \$1.65, base, for carload lots, f.o.b. maker's mill. Iron Cut Nails for delivery at Pittsburgh, Buffalo and all points west of these cities are held at about \$1.70, base.

**New York.**—The local demand for immediate delivery shows a fair proportion to the orders for Wire Nails. Advantage is being taken of the low prices by some retail merchants to place orders for future shipment. Small lots from store are quoted on the basis of \$1.90 to \$1.95.

**Chicago.**—The basis of \$1.60, Pittsburgh, or \$1.75, Chicago, is the open car lot quotation of most producers to jobbers and railroads, and at least one large mill is soliciting business from jobbers at \$1.70, base, Chicago, in car lots. Smaller buyers pay from \$1.80 to \$1.90 from mill, according to size of order, while jobbers' price in small lots from store is unchanged at \$2, base.

**Pittsburgh.**—The demand continues light and there is more or less irregularity in prices, some of the mills being willing to make concessions to effect sales. We quote Cut Nails at \$1.60 to \$1.65, base, for carload lots, f.o.b. maker's mill. Iron Cut Nails are about \$1.70 per keg in carload lots.

**Barb Wire.**—The agricultural prosperity of the country is a guarantee in a large measure of a prospective heavy demand for Barb Wire. Just at present demand is light. Quotations are unchanged, as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$1.95	\$2.25
Retailers, carload lots.....	2.00	2.30
Retailers, less than carload lots.....	2.10	2.40

**Chicago.**—The tendency of the trade is away from Barb Wire and toward Woven Wire Fencing, though much Barb Wire is used on the tops of woven fences. The more prosperous a farming community and the more thickly settled it becomes the lower falls the proportion of Barb Wire to the total fencing bought. Notwithstanding this tendency, a very large tonnage of Barb Wire is going into consumption this year, and fall trade is opening up well. Official prices are unchanged, as follows: Painted Wire, \$2.10; Galvanized, \$2.40; car lots to retailers, 5 cents higher; less than car lots, Painted Wire, \$2.25; Galvanized, \$2.55; Staples, Bright, in car lots to jobbers, \$2.05; Galvanized, \$2.35; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

**Pittsburgh.**—While the volume of new business is light prices are firm, reflecting the recent action of the mills in agreeing to maintain the market. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$1.95	\$2.25
Retailers, carload lots.....	2.00	2.30
Retailers, less than carload lots.....	2.10	2.40

**Smooth Wire.**—The increasing demands for fencing will have a perceptible effect upon the amount of Smooth Wire consumption. Demand shows some improvement, and indications point to a heavy fall business. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.65
Retailers, carloads.....	1.70

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....Base	\$0.05	.10	.15	.25	.35	.45	.55	.65	.75
Galvanized....	\$0.30	.35	.40	.45	.55	.65	.75	.85	.95

**Chicago.**—Plants, large and small, for the manufacture of Woven Fencing are springing into existence all over the West, and all existing plants seem to be full of business. The demand for Woven Fencing has been greater than in any previous year, and 1905 will be a record year. The contracting movement for the purchase of the coming season's supply of Wire is becoming more active.

Smooth Wire is also in good demand by the general trade. Official prices are unchanged on the basis of \$1.80 for Annealed, car lots to jobbers, and \$1.85 in car lots to retailers, with 5 cents advance for less than car lots and 30 cents premium over Annealed for Galvanized.

**Pittsburgh.**—The demand is showing some betterment and indications are for a heavy fall trade. Prices are firmer than for some time, and it is claimed recent irregularities have entirely disappeared. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.65
Retailers, carloads.....	1.70

**Sheet Zinc.**—Under date of August 10 an advance is announced in the price of Sheet Zinc, which is now quoted at \$7.50 per 100 pounds in 600-pound casks, f.o.b. mill, subject to the following discounts for cash and quantity:

	Cash with order. Per cent.	Quantity. Per cent.	Total. Per cent.
Carload lots.....	3	5	8
9000-pound lots.....	3	3	6
6000-pound lots.....	3	2	5
3000-pound lots.....	3	1	4
Less than 3000 pounds.....	3	0	3

**Shot.**—Under date of August 14 the United Lead Company announced an advance of 5 cents per 25-pound bag of Shot, except on Dust Shot. There is the usual abatement on ton lots of 10 cents per bag of 25 pounds, terms 30 days, or 2 per cent. for cash in 10 days. New prices are as follows:

Drop Shot, sizes smaller than B, per 25-pound bag.....	\$1.70
Drop Shot, B and larger sizes, per 25-pound bag....	1.95
Buck and Chilled Shot, per 25-pound bag.....	1.95
Dust Shot, per 25-pound bag.....	2.25

**Brass Sheets, &c.**—An advance in the price of Sheet and Roll Brass, Brass Rods, Wire and Brazed Tubing amounting to about 4 per cent. has been made by some of the principal manufacturers of these goods. The entire line of Brass and Copper Material is very firm and the demand is excellent.

**Rope.**—The market continues in about the same condition, the demand being moderate and market irregular. The Sisal Hemp market is a little stronger than it was last week, while Manila Hemp remains unchanged, as does Jute. No changes have been made in the prices of Rope. General quotations on the basis of 7-16 inch diameter and larger are as follows: Pure Manila, 11½ to 12 cents; Pure Sisal, 10 cents; No. 2 quality Sisal, 8 cents per pound, the above figures being shaded ¼ to ½ cent per pound, according to seller and buyer.

**Window Glass.**—It is reported that one of the workingmen's associations has come to satisfactory agreement with the manufacturers' Wage Committee regarding a wage scale for the coming fire. Another of the workingmen's associations has failed to come to any agreement on wages, according to reports. It is understood that jobbers in the Chicago district have reaffirmed the quotations of 90 per cent. discount on the first two brackets and 88 per cent. discount on larger sizes, with the exception of large single strength, which they advanced to 87 per cent. discount.

**Oils.**—**Linseed Oil.**—The local demand so far this month has not come up to that during the corresponding period in July. Considerable Oil was sold on contract orders for October forward deliveries when the price of 40 cents for out of town Raw and 42 cents for city Raw was made. The present prospects for a large Seed crop are good, and buyers' views have dropped to 35 cents in view of this prospect. New York quotations for prompt deliveries are as follows: City Raw, 54 to 55 cents per gallon; State and Western Raw, 52 to 53 cents per gallon, according to quantity.

**Spirits Turpentine.**—The local market has been firm and unchanged, with a moderate demand. New York quotations, according to quantity, are as follows: Oil barrels, 63½ to 64 cents; machine made barrels, 64 to 64½ cents per gallon. The high prices which have ruled for Spirits Turpentine have brought into more or less extensive use Wood Turpentine as a substitute. This is extracted from pine stumps by a hot air process, while

spirits are made from the pine gum. Some Wood Turpentine runs uniformly white, but all possesses a strong odor, much more rank than spirits. The wood article sells from 5 to 15 cents less per gallon than Spirits, but has not become very popular, as, in addition to the disagreeable odor, it does not answer for all purposes.

### OLIVER BROTHERS PURCHASING COMPANY.

THE firm of Oliver Brothers, 127 Duane street, New York, has been incorporated, under the laws of the State of New York, as the Oliver Brothers Purchasing Company. The officers are as follows: Thomas E. Oliver, president; James H. Oliver, vice-president; Frank J. Oliver, secretary and treasurer. The only directors and stockholders of the company are the above named officers, who comprised the firm of Oliver Brothers. The authorized capital, fully paid up, is \$60,000, an amount more than sufficient to conduct the business safely and discount all bills, as nine-tenths of the orders placed by the company are charged direct to their principals, jobbers of Hardware and kindred supply lines throughout the United States and Canada, the three or four foreign houses for whom the company buys carrying cash balances in New York. The change has been made for convenience and to perpetuate the business and does not in any way affect the policy of the business. This business was started by Thomas E. Oliver about January 1, 1901, with whom James H. Oliver was associated as clerk. On May 1, 1902, Frank J. Oliver became connected with the business, when the name was changed to Oliver Brothers. The three brothers have been identified with the Hardware purchasing field from boyhood, and their venture has been successful from the start, a gratifying increase in business being shown year by year.

### PRICE-LISTS, CIRCULARS, &c.

*Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our Catalogue Department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made besides the brief reference to the catalogue or price-list in this column.*

EVANSVILLE TOOL WORKS, Evansville, Ind., Hendricks & Class, agents, 25 West Broadway, New York: Illustrated price-list devoted to Hammers, Hatchets, Broad Axes, Adzes, Cleavers, Heavy Hammers and Sledges, Picks, Mauls, Blacksmiths' Tools, &c.

SYCAMORE WAGON WORKS, Sycamore, Ill.: Illustrated catalogue devoted to Low Down Short Turn Hardware and Furniture Wagons. Five styles of Hardware Wagons are shown, one Light Truck Wagon and two Furniture Wagons.

S. L. ALLEN & Co., 1107 Market street, Philadelphia, Pa.: Catalogue devoted to the Planet, Jr., Farm and Garden Implements. The company also manufactures Flexible Flyer Coasters.

DIAMOND SAW & STAMPING WORKS, Buffalo, N. Y.: Illustrated catalogue and price-list relating to Hack Saw Blades and Frames, Emery Wheel Dressers and Power Hack Saw Machines.

HARRINGTON & RICHARDSON ARMS COMPANY, Worcester, Mass.: Catalogue No. 8, relating to Revolvers and Shotguns. Revolvers are shown in a large variety of styles and single Guns in nonejecting and automatic ejecting patterns.

WHITMAN & BARNES MFG. COMPANY, Chicago, Ill.: Handsome catalogue describing and illustrating its entire line of Diamond Hay Carriers for steel or wood track and for rod or cable use; also center trip and end Brake Slings, Sling Pulleys, Haying Forks, single and double Harpoons, Grapples, Hay Pulleys and sundries.

THE ALLITH MFG. COMPANY, Chicago, Ill.: An attractive folder, entitled "Always on the Track," illustrating and describing No. 3 gravity closing Fire Door Hangers

and Automatic Fixtures and the Allith Drop Fire Door. It is stated that the Allith Hangers have the approval of the National Fire Protecting Association.

THE UNITED STATES HOE & TOOL COMPANY, Columbus, Ohio: Catalogue of Farm and Garden Tools. The first quality goods bear the label of the United States Hoe & Tool Company and the second quality are labeled Atlas. The company makes Manure Forks in third quality only, and these are labeled Buckeye. Its new factory when running full time has a capacity of about 300 dozen Steel Goods a day.

### TRADE ITEMS.

MACOMB SEWER PIPE COMPANY, Macomb, Ill., manufacturer of Sewer and Culvert Pipe, Flue Lining, Wall Coping and Drain Tile, has made improvements in its two plants. Four new kilns have been built and a 2½-mile railroad switch to its new clay pit has been constructed. The latter will guarantee the company a supply of first-class clay during the entire year, from which it will be able to manufacture a superior grade of Sewer Pipe. It will also enable a complete assortment of all sizes of Pipe and Fittings to be kept in stock at all times.

THE CHAPIN-STEPHENS COMPANY, Pine Meadow, Conn., for quite a number of years manufactured Wood's Patent Extension Sight Levels for the party who had control of the patent. The company has now acquired the privilege to make and market them on its own account, in addition to manufacturing them for the patent owner. The company has improved its line of Boxwood Rules and their finish and its Ivory Rules are being finished by a new process which adds to their appearance.

At the annual meeting of the American Shear & Knife Company, Hotchkissville, Conn., held on the 8th inst., the following officers, who are also directors, were chosen: H. S. Dormitzer, president; H. J. Mason, treasurer, and Henry Eyre, secretary.

A. E. DIESEM, representing F. E. Myers & Brother, Ashland, Ohio, has just returned from an extended tour of the Southern States. Mr. Diesem did much of the pioneer work in introducing the Myers goods in the South. It is said that there are 120 Myers Pumps in use in Chickamauga National Park.

BUTLER BROTHERS, Chicago and New York, have just issued a handsome 52-page pamphlet in which they tell interestingly the history of the firm from its foundation in Boston in 1877. The book is illustrated with more than 100 interior and exterior views of the New York, Jersey City, Chicago and St. Louis plants of the company, the exteriors being printed in colors. An idea of the magnitude of the plants described may be gained from the statement that they have an aggregate of 1,600,000 square feet, or nearly 37 acres, of floor space.

W. W. SUPPLEE, president of the Supplee Hardware Company, Philadelphia, Pa., is making an extended pleasure trip through the Northern lakes, National Park, Vancouver Island, &c., visiting also the Lewis and Clark Exposition at Portland, Oregon.

KENNEDY & ERNST some time in September will embark in the retail business at Lawrence, Kan., handling Shelf and Heavy Hardware, Stoves, Tinware, Paints and Oils, Sporting Goods, &c.

C. S. KENDALL and HENRY FRENZEN have lately begun the retail business in Santa Ana, Cal., under the style of the Santa Ana Hardware Company.

KNEELAND & MOORE have bought the retail Hardware, Stove and Sporting Goods business formerly conducted by W. W. Randolph in Huntsville, Texas.

JOHN J. TOWER of Tower & Lyon Company, 95 Chambers street, New York, sailed for England on Saturday, 12th inst. His trip will combine business with pleasure and he will visit different parts of England, including also probably a coaching tour through Wales. Mr. Tower will return early in September.

## The Michigan Retail Hardware Association.

**A**S stated in our telegraphic report last week, the eleventh annual convention of the Michigan Retail Hardware Dealers' Association met in the city of Saginaw on Wednesday, August 9. Those arriving the night before found the Hotel Vincent, which had been selected as headquarters, transformed into a bazaar and decorated with a large electric sign reading, "Welcome, M. R. H. D. A." Cordiality everywhere prevailed and at the impromptu reception which ensued old friendships were renewed and many new acquaintances were formed under the happiest auspices.

A meeting of the Executive Committee at 9 o'clock on Wednesday morning was followed by the registration of members, the enrollment of new members and the distribution of the unique convention badges, which, with the printed programmes, afforded a convenient means of identification by number.

### WEDNESDAY AFTERNOON SESSION.

At 2.30 p.m., the convention was called to order in the German Temple of Music, and J. H. Whitney of Merrill presented Mayor Lee, who welcomed the members of the association to Saginaw in a few hearty words. After acknowledging this greeting President J. B. Sperry of Port Huron announced the appointment of committees as follows:

**NOMINATIONS:** T. Frank Ireland, Belding; E. B. Standart, Holland; Frank Brockett, Battle Creek; S. W. Winchester, Jackson; J. J. Potter, Alpena.

**AUDITING:** G. B. M. Towner, Muskegon; E. J. Morgan, Cadillac; J. G. Patterson, Detroit.

**QUESTION BOX:** F. W. Pierce, Owosso; J. W. Phillips, Allegan; P. A. Wright, Holly.

**RESOLUTIONS:** A. N. Patriarche, Marlette; C. A. Reynolds, Petoskey; A. N. Russell, Sheridan.

**CONSTITUTION AND BY-LAWS:** J. H. Whitney, Merrill; Chas. M. Alden, Grand Rapids; E. S. Rowe, Buchanan.

**CREDENTIALS:** E. J. Hallett, Pontiac; J. M. Williams, North Adams; George Waigle, Pewamo.

**FINANCE:** Chas. A. Sturmer, Port Huron; E. L. Smith, Lansing; Allen Havens, Bellevue.

**PRESS:** A. G. Schoeneberg, Saginaw; George J. Frank, Bay City; G. T. Gready, South Lyons.

**LEGISLATION:** Senator C. L. Glasgow, Nashville; A. Harshaw, Delray; C. E. Pipp, Otsego. This committee is to be permanent.

**SERGEANT-AT-ARMS:** John Popp, Saginaw.

After the minutes of the last annual meeting and the March meeting of the Executive Committee had been read and approved the secretary read regrets from the following secretaries of State Hardware associations:



C. E. Barnes, North Dakota; Paul McLure, South Carolina; Davis Barkley, Colorado; Frank A. Bare, Ohio, and John R. Foley, New York. Telegrams were read from Frank A. Bare extending the greeting of the Ohio Association and from Treasurer Henry C. Weber, Detroit, who, as stated last week, was kept from attending the convention by a broken leg. The latter telegram read: "Greeting, wisdom, harmony and success." Recognition was expressed that this was the first convention of the association that Mr. Weber had missed, and it was voted to send him a return wire of greeting and sympathy, with thanks for his paper, "The History of Our Association," which he prepared in spite of his accident

and which was read by A. Harshaw, Delray. This paper is given elsewhere.

Taking up the regular order of business, President J. B. Sperry then read his annual address, which follows:

### President's Address.

It was just 11 years ago when a few of us met in Detroit and organized this association. Persistent effort has meant life to this body and we have grown in membership and in strength until now we have become a necessary adjunct to modern business methods.

When I look about me and see the familiar faces of



J. H. WHITNEY.

my associates of years gone by mingled with so many new members my heart swells with pleasure, and it is hard for me to express my gratification and the satisfaction I feel in the work which has been done in the past year by your officers and your body. It is my greatest wish that this meeting will be so successful that every member will go back to his place of business feeling that he has been doubly paid for his time; but in order to do this and in order to reap the benefits of this convention

### WE MUST HAVE UNITED ACTION.

As I have the honor to preside here I shall look upon this convention as one great Hardware store. I'm the proprietor and you're my clerks.

As my clerks it's your duty to get together to study the affairs of our association and to offer any suggestions which might help us in our business or in our work during the coming year. Don't leave anything undone; don't go home and say we should have done this or done that; do it now. That's what we are here for. We're not orators or public speakers and we don't expect to hear any flowery talks. We're Hardware dealers met in convention to exchange ideas and opinions, and that is what we have got to do to make this meeting the success I hope to see it. Every one of you has some idea that might benefit the other. Let's have it. Remember, this is our Hardware store and I'm the proprietor. I'll fire the clerk who neglects his duty.

### INCREASED PROSPERITY AND INFLUENCE.

Never before has our association been in such healthy condition. The work of our officers the past year has resulted in more than doubling our membership, and we are now in a position to get better results than ever before. Our influence increases with our strength. We have the help and the confidence of the jobbers and the sympathy and support of the manufacturers. I cannot too deeply impress upon you the necessity for active mem-

bers, for united action and for the exchange of ideas and opinions.

#### DON'T BE SELFISH

and remain inactive or away from our conventions just because you can reap the benefit anyhow; get in the game and give your help. That's what we want.

#### TRAVELING MEN,

I want to extend to you a hearty welcome to this convention; we're glad to have you with us. We consider you our allies, and I wish to take this opportunity of thanking you for the aid and assistance you have given us in the past year. Your good work for the association has worked wonders. Keep it up. We need you in this convention as well as in our place of business, and here's to your success, your good health and your prosperity.

National Association work I will say nothing about, as we have with us again our worthy national president, Brother Bogardus, whom you have to know to appreciate. Any one going away from this convention without making his acquaintance will miss a great treat.

#### MUTUAL INSURANCE.

The different Hardware mutual fire assurance companies are all on a sound financial footing and are saving their policy holders from 25 to 40 per cent. of the cost of the old line companies. They are past their experimental stage, and I believe they are worthy of our indorsement and patronage. By taking out a policy you can easily save your dues to the State association and the expense of attending the annual State convention.

#### REIMBURSE THE SECRETARY.

Now, just a recommendation: Increasing our membership means more work for our secretary. He is paid but a trifle now for his labor and that trifle is still on the debit side of the ledger. I would recommend to this body that he be reimbursed for the work he has done in the past and that there be some material advance in his salary. I feel justified in making this recommenda-



J. B. SPERRY.

tion, as I have been in close touch with our worthy secretary and know the amount of work he has been called upon to do; besides, our bank account is double, yes, treble, that of any previous year.

In closing I might say I entertain great hopes for the future of this organization, and I wish to thank the officers and Executive Committee, who have ever been ready to assist in the work.

#### Treasurer's Report.

In the absence of Treasurer Henry C. Weber, Detroit, the secretary read his report. The amount on hand August 9, 1904, was \$179.48; amount received to August 8, 1905, \$2423.40; total amount received, \$2602.88; disbursements, \$1723.25, leaving \$879.63. In addition to this amount there was a net profit on the programme of \$1039.57, leaving a balance on hand of \$1919.20.

#### Secretary's Report.

Secretary A. J. Scott of Marine City then presented his annual report, the greater part of which we quote, as follows:

We have always felt that in order to be able to wield the influence which an organization of this kind should exercise we must enlist the support of a larger number of the retail Hardware dealers in the State than we have enjoyed in the past, and consequently immediately after our convention in Grand Rapids a year ago this matter was given very serious consideration. Personal sollicita-



E. B. STANDART.

tion seemed to be the solution of the problem of getting new members, and after engaging two men whose efforts in this line were not very successful we secured through Mr. Sperry the assistance of a solicitor, W. D. Anderson, whose work has been more successful than we had dared to hope. A commission basis was decided upon as the most satisfactory, and while the liberal commission given to Mr. Anderson has enabled him to earn an excellent salary since the first of the year the association has been well repaid by the steady increase in our membership list.

#### FIVE HUNDRED AND FIFTY MEMBERS.

At the time of our last convention we had 224 members on our list. Of these 14 have either resigned, are out of business or have been dropped for nonpayment of dues, leaving 210 of our old members still with us. Thirty new members joined at the last convention; Mr. Anderson has taken 258 applications; Mr. Sperry has secured 6; Mr. Mann, a solicitor who worked for a short time, 7; J. Chas. Ross, representing Standart Bros., 2; E. J. Morgan, Cadillac, 2; T. J. Mathews of the Minnesota Insurance Company, 1; J. A. Martin of the Reed Anti-Rust Mfg. Company, 1; W. A. Kendall, 2; while as a result of correspondence we have taken in 27 new members by mail. This makes in all 329 new members and brings our membership list up to a total of 549, a gain of over 150 per cent. since a year ago.

I think a comparison with other States will show that the Michigan Association, with possibly one exception, is now, in proportion to the number of dealers in the State, the strongest organization of its kind in the United States. It is unnecessary to dwell very long on this subject of membership, the figures speaking for themselves, but I cannot refrain from commenting upon the evident desire which has been shown by many of our members to help in the work of increasing our list. Among the applications secured by mail there are a great many for whom credit should be given to some member of the association at whose request literature and letters of solicitation were sent.

## SOUVENIR PROGRAMME.

At our convention in Grand Rapids last year the Executive Committee was authorized to publish this year a souvenir programme of our convention. At the executive meeting in March the details of this matter were turned over to a committee consisting of Mr. Sperry, Mr. Weber, Mr. Patterson and the secretary, and the programme, of which you all received a copy, was the result. The manufacturers and jobbers assisted us loyally in this our first undertaking of the kind, and we have consequently been enabled to place a copy in the hands of every dealer in the State and make a handsome profit above all expenses. This has given us a substantial sum for our treasury, and I am glad to say that our finances



A. J. SCOTT.

are now in better shape than they have been at any time since the association was organized.

## COMPLAINTS.

We have received several complaints this year, and a brief reference to their character will enable our members to realize how these are handled and enable them to discuss and offer suggestions for the next secretary which will be valuable to him.

One of our members located in one of the larger cities filed a complaint recently against a jobber for

## SELLING GOODS TO A CONTRACTOR

who had up to that time purchased all his requirements in the Hardware line through the retail stores. When this matter was brought to the attention of the jobber in question he assured us that he had no desire to go contrary to the wishes of our association; the bill in question had been sold through an error and he would not in future sell goods to this class of customers. He credited the retailer with a reasonable commission on the order which he had filled and the matter was then closed upon our books.

Another jobber was complained against for selling goods to a concern operating a

## RACKET STORE

and his explanation that the order had been taken by a new man on the road and that the firm had no desire to sell to this class of trade was accepted and no further complaints, I believe, will be made against this firm.

Two other complaints against various jobbers and manufacturers for selling goods to this class of trade have been on our books for some time, and we have had ample reason to see that the jobbers and manufacturers are very anxious to protect the legitimate retailer against the ruinous competition which is furnished by that class of stores which uses its Hardware department as a leader to attract trade in other lines. It would not be policy for me to read any of these letters unless I read them all, but I can assure you that it is gratifying to realize the

consideration which is being given to the interests of our members by the majority of the manufacturers and jobbers who do business in this State.

Two complaints against manufacturers outside of Michigan have been referred to the secretary of the National Association, who has facilities for handling same that the secretary of a State association does not enjoy. Mr. Corey is very close to the manufacturers and jobbers, and will secure redress in such cases much more easily than we could hope to do.

I am sure that the majority of our members have a pretty good idea of what is right and wrong and that they will not make a complaint against a manufacturer or jobber unless they have a real grievance. In such cases the officers are more than anxious that their attention should be called to the matter by members.

Mr. Scott then referred at length to the annual meeting of the National Retail Hardware Association, discussing the action taken against the Parcels Post bill and other matters that came up for consideration. He also told what had been accomplished by the Joint Catalogue House Committee and expressed the opinion that the work of this committee alone was worth to every retail Hardwareman in the country more than the cost of his annual dues in his State association. The attitude of the manufacturers and jobbers through their associations was, he said, the most encouraging feature of the outlook for association work.

## HONORARY MEMBERS.

Continuing, he said:

When on the subject of membership I neglected to refer to the action taken by your Executive Committee at a meeting held in Saginaw on March 21. At that time it was decided to admit traveling men who call upon the Hardware trade as honorary members to the association, and I believe in the future we will realize the wisdom of this action. We have already secured quite a list of honorary members, and I know that these will spread the gospel of the association among the dealers upon whom they call that are still outside the association. We have already had reason to realize that their assistance will be very valuable in securing new members.

## DEATHS.

It is my sad duty to report that the grim reaper has taken from us three of our good members during the past year: J. W. Jochim of Ishpeming, one of the charter members of the association and a man who was always willing to do more than his share of the association work; Otis Taylor of Port Huron, who has been a member for several years, and E. F. Platt of St. Joseph, who was also one of the old standbys of the organization. I hope that the proper committee at this convention will take cognizance of these sad events by introducing suitable resolutions.

In closing my report I cannot refrain from expressing just a few words of thanks to the officers of the association for their assistance during the past year. One and all have done everything possible to further the interests of the association. My work has naturally brought me in very close touch with President J. B. Sperry, and I tell you that there are none of you who will ever half appreciate the efforts which he has made during the past year in the interest of this association. I have sometimes felt that he considered his own business secondary when the business of the association was at stake, and he must be given the lion's share of the credit for the increase in membership which we have enjoyed this year.

I want to thank the members personally for the kind words of encouragement which I have received from time to time, and I hope that the lot of the new secretary whom you will elect will be made as pleasant as mine has been during the three years that I have held this office.

## Other Addresses.

This completing the regular order of business, the president introduced T. Frank Ireland, Belding, a member of the Executive Committee of the National Association as well as the Michigan body, and also a member of the Joint Catalogue House Committee. Mr. Ireland's paper, "Our Friends," given elsewhere, was prefaced, in-

terspersed and concluded with pleasant and humorous extemporaneous remarks and was listened to with the greatest enjoyment. Henry C. Weber's paper, "The History of Our Association," followed, read by A. Harshaw, Delray. On motion a vote of thanks was passed to the president, secretary and Messrs. Ireland and Weber in appreciation of their reports and papers.

#### Local Associations.

The meeting was then thrown open and there was a general discussion of the matter of local associations. J. H. Whitney, Merrill, suggested the formation of county or district associations which could meet three or four times a year to adjust differences and promote mutual understanding. After some further remarks, C. A. Peck, secretary of the Wisconsin Association, was called upon, who said that he could hardly report favorable results from a trial in his State. There was danger, he said, that such local organizations would detract some attention from the State association. It was finally left to the Committee on Constitution and By-laws to consider the matter and formulate a plan of local organization if they deemed it advisable.

#### THURSDAY MORNING SESSION.

The convention was called to order at 9.45 and listened to an enthusiastic paper by E. B. Standart, Holland, entitled, "Loyalty—The Essence of the Question." Several members offered helpful suggestions. Mr. Bogardus provided a recipe for making loyal competitors, which called for a can of oysters, a box of cigars and an evening up at the house. Mr. Standart's paper is given elsewhere in this issue.

Following came an able address by W. P. Bogardus, president of the National Retail Hardware Association, who took for his subject, "Parcels Post." This aroused a general and very animated discussion. W. P. Lewis, treasurer of the National Mutual Insurance Company, then presented the proposition of mutual fire insurance for Hardwaremen in an exceedingly interesting, forcible and convincing way. Mr. Lewis' address will be given in our next issue.

A. T. Stebbins, president of the Minnesota Association, outlined the system employed in his State and proved its practicability and profitableness to the insured by good round figures. Mr. Stebbins also offered some valuable suggestions looking toward the formation of local merchants' associations with a view to protecting credits and educating customers—especially farmers—to buy at home. In his vicinity, he said, they had conducted a campaign which, on evidence of the express and freight agents, had reduced the number of shipments from catalogue houses 75 per cent. Local farmers were now ashamed of sending away for goods and an accusation to this effect would often start a quarrel.

C. A. Peck, secretary of the Wisconsin Association, then described the mutual insurance company in his State. Remarks by A. R. Sale, secretary of the Iowa Association, ended the session.

#### CLOSING SESSION.

The closing session was held in the afternoon, with a full attendance. The Committee on Credentials reported that 254 members had been found entitled to a seat in the convention.

#### Name Changed.

The Committee on Constitution and By-laws recommended that the name of the association be changed by striking out the word "Dealers," so as to read Michigan Retail Hardware Association. This was adopted. Regarding the matter of local associations the report was as follows:

We would further recommend that the members of the State association form themselves into local, county or district associations and do all in their power to interest and secure a membership of nonmembers in the State association and local associations. We believe that it would not at this time be practicable for the State organization as a body to take up said work, but would recommend that printed matter and circulars be prepared setting forth the advantages and benefits to be derived from local organizations and that same be distributed among all the Hardware dealers in the State.

#### Resolutions.

The following resolutions were adopted as proposed by the committee appointed for that purpose.

*Resolved*, That we extend our thanks to the hotel management for their courtesies and their efforts in entertaining our association; also to the salesmen, jobbers, manufacturers and the local association for their untiring efforts in contributing their share in making this the most successful meeting in the history of this association.

That we further thank the National Association officers and State association officers visiting us for their interest and cooperation which they have rendered us; also that we recognize the excellent work done by the National Joint Catalogue House Committee.

That we regret the passing away of our fellow members, the late J. W. Jochim of Ishpeming; Otis Taylor, Port Huron; E. F. Platt, St. Joseph, and that we miss them from our association midst.

That we adopt an association insignia designed with the inscription, "Member of the Michigan Retail Hardware Association," to be used on stationery, and that the secretary's office issue a number to each member which shall appear on such stationery, so that no advantage can be taken by unscrupulous dealers.

*Whereas*, It is stated in the report of the Postmaster General that there is a deficit for the year ending June 30, 1905, of over \$15,000,000 in his Department; and,

*Whereas*, It is not wise on the part of the Government to engage in experiments that from past experience will result in deficits; therefore be it

*Resolved*, By the Michigan Retail Hardware Association, that we notify our Representatives and Senators in Congress that we are opposed to all legislation looking to the establishment of any post parcels laws, and, as their constituents, request and urge them to vote against any such measures and to use their influence to defeat the enactment of any such laws.

The Auditing Committee reported that the books of the secretary and treasurer had been examined and found correct, and the Finance Committee expressed approval of the methods employed during the past year to increase the revenue and growth of the association. The latter recommended a souvenir programme for the next convention, and suggested a reimbursement of the secretary for the extra time required for association work during the past three years and an increase in salary, which were voted.

#### Question Box.

The next hour was occupied with the Question Box, conducted by M. L. Corey, secretary of the National Retail Hardware Association. Under his stimulating leadership many timely subjects and questions of vital interest to Hardwaremen were discussed in a lively manner, such as: "Can a Hardware Business Be Conducted on a Strictly Cash Basis?" "Should a Retail Hardware Merchant Allow Himself a Salary, to be Included in the Expenses of His Business, and if so What Amount?" "What Is the Expense in Per Cent. of Conducting a Retail Hardware Business?" "Should the Hardware Merchant Give Preference to Manufacturers' Brands?" &c.

#### New Officers.

The report of the Nominating Committee was then heard, which presented the following list of officers for the coming year, who were unanimously elected:

PRESIDENT, J. H. Whitney, Merrill.

VICE-PRESIDENT, E. B. Standart, Holland.

SECRETARY, A. J. Scott, Marine City.

TREASURER, H. C. Weber, Detroit.

EXECUTIVE COMMITTEE (for two years), J. B. Sperry, Port Huron; T. F. Ireland, Belding; C. M. Alden, Grand Rapids; J. H. Murray, Cadillac; G. P. Griffin, Albion.

With the new president in the chair, resolutions were passed thanking the retiring officers, and especially J. B. Sperry, the retiring president, for their faithful labors and expressing appreciation of the work that they had done.

#### Detroit Next Year.

The convention then passed to the consideration of the next place of meeting, and after letters of invitation were read from the Mayor of Detroit, the Detroit Board of Commerce and the Detroit Retail Hardware Association urging that the convention be held in that city next year Detroit was chosen with enthusiasm.

#### CONVENTION NOTES.

Two suggestions were offered showing how the members could effectively co-operate in the work that is being done by the National Association. One was in purchasing and supplying to local papers the cartoons which

have been prepared by Secretary Corey of the National Merchants in various towns were urged to club together and buy the six plates, which cost but \$1 apiece. The other suggestion was to sign and send to Senators, Congressmen and other public officials the printed copies which will be prepared quoting the resolution adopted in regard to parcels post.

After it was all over no less an authority than President Bogardus of the National Retail Hardware Association was heard to remark that he considered it the biggest and best meeting of the kind that he ever attended.

Those who attended the convention did not lack for entertainment. Not only was the Reception Committee on the lookout for the pleasure and comfort of the members, but the local manufacturers and jobbers and their representatives devoted themselves almost exclusively to their guests.

The spacious building of Morley Brothers was over-run with visitors, early and late, and on Thursday R. C. and Paul Morley gave a luncheon at the luxurious East Saginaw Club. Customers and friends were shown through all the varied departments of their large establishment, including their Harness factory, Horse Collar factory and works in which their famous Blue Line Lumbering Tools are made. Great pride was taken in showing the announcement of Gold Medal and Highest Award received at the St. Louis Exposition. Another point of interest was their big new warehouse, with trackage facilities, situated on the river front and now almost completed. Handsome souvenir badges were distributed with Pocket Knives in leather cases.

The Lufkin Rule Company had autos chartered daily to take visitors out to its extensive plant, and a highly interesting trip it was. From office to furnace room these works are strictly modern in furnishings and equipment.

On Thursday morning a large party visited the Saginaw Hardware Company on a special car provided by the host and were then conveyed in carriages to the Saginaw Plate Glass Works, where the various processes of glass making were watched with interest. The unique factory of the United States Graphite Company was also inspected by a number of visitors.

The Bohemian night entertainment and Dutch lunch tendered to the association by the Saginaw merchants, jobbers, manufacturers and the visiting traveling salesmen were held in the Germania Garden, an outdoor resort, where plates were laid for about 500. Souvenir programmes were provided bound with small Bolts, and unlimited good fellowship prevailed. T. J. Furlong of Morley Bros. was toast master, and in the course of the evening he presented Secretary Scott with a handsome umbrella and cane on behalf of the traveling salesmen. The committee who had the evening in charge consisted of John Popp, Theo. Huss, Arthur Schoeneberg and V. E. Widenmann.

The matter of the next meeting place was practically taken out of the hands of the convention by the Detroit contingent, who came up very strong, with badges reading "Detroit, 1906," and practically carried their point by storm. They were armed with an imposing lot of formal invitations addressed to the association and distributed broadcast souvenir booklets describing the advantages of their city and illustrating its beauties, resorts, prominent buildings, &c.

The H. D. Smith & Co., Plantsville, Conn., sent to the secretary 200 sets of its patent Perfect Handle Screw Drivers, which were distributed among the members. The Tools are drop forged solid, hammer headed, with water proofed handles. One handle was cut away enough to show the construction plainly, but not enough to injure the value of the Screw Driver. Much appreciation was expressed of this liberal method of advertising.

#### EXHIBITORS.

Among the exhibitors at the convention were the following:

GEM CITY STOVE COMPANY, Dayton, Ohio, represented by J. P. Bauer: Clermont Stoves, Steel and Cast Ranges and Coal and Wood Heaters.

WAHLE FOUNDRY & MACHINE WORKS, Davenport, Iowa, represented by H. H. Wahle: Snowball Rotary Washer and Cascade Lever Washer; also White Swan Swing Tub Washer, made by the Davenport Washing Machine Company. Souvenir, a snowball pin.

SIMONDS MFG. COMPANY, Fitchburg, Mass., and Chicago,

Ill., represented by Messrs Van Dyke, Feddery and Miller: Parlor decorated with palms and flowers, displaying Hand, Butcher, Buck and Cross Cut Saws, and small Circular Saws, with exhibit of free advertising matter offered to the trade. Souvenir, miniature Hand Saw.

AMERICAN STEEL & WIRE COMPANY, represented by W. H. Crawford and S. E. Olcott: American and Ellwood Fence.

FRIBERGER HEATING COMPANY, Akron, Ohio, represented by C. C. Hammond: Ath-a-nor Heaters.

REED MFG. COMPANY, Newark, N. Y., represented by J. W. Martin: Complete line of Anti-Rust Tinware, Enamel Steel Ware and specialties. Souvenir, gun metal Match Safe.

NATIONAL VAPOR STOVE COMPANY, Lorain, Ohio, represented by J. A. Alexander: Direct Action Gas Range, Insurance Gasoline Stove and Steel Coal Ranges.

KEUFFEL & ESSER COMPANY, New York and Chicago, represented by W. C. Hedki: Prominent and complete display of Measuring Tapes, &c.

SUPERIOR MFG. COMPANY, Indianapolis, Ind.: Exhibit of Superior and Best Cream Separators and Acme Creamers.

VOSS BROTHERS MFG. COMPANY, Davenport, Iowa: Ocean Wave Washer.

WHITE LILY WASHER COMPANY, Toledo, Ohio, represented by A. F. Victor: White Lily Washer.

BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio, represented by E. L. Enneking: Boss, Boss Rotary and 1904 Automatic Washing Machines. Souvenir, package of court plaster.

LUFKIN RULE COMPANY, Saginaw, Mich., represented by Fred Buck and Theo. Huss, officers of the company: Handsome showcase display of Measuring Tapes of all kinds, Rules, &c. Souvenir, Steel Pocket Tape.

U. S. GRAPHITE COMPANY, Saginaw, Mich.: Exhibit in the store of Morley Bros., showing crude graphite and displaying the products obtained from it, such as Axle Grease, Lubricating Graphite, Paint, &c. Souvenir, Pencil containing lead from company's Mexican mine.

J. P. Beck, Saginaw, Mich.: Exhibit of handsome Carriages and other vehicles.

GEM CITY STOVE MFG. COMPANY, Quincy, Ill., represented by R. J. Clark: German Soft Coal Heaters.

STOLLBERG HARDWARE COMPANY, Toledo, Ohio: Souvenir, leather bound pocket memorandum pad.

STANDART BROS., Detroit, Mich., represented by Messrs. Bogue, Dillon, Raymond, Kastenber, Riker, Guilloz and Brown: Elaborate display of Fishing Tackle, Reels, Lines and Flies, with new features in Casting Rods for 1906; standard makes of Firearms; 1906 samples of Victor Athletic Goods; complete line of Cutlery, Butcher Knives, Razors, Scissors, Miller Bros. Pocket Cutlery and Flat Silver Ware. Souvenir, Match Safe.

ROCHESTER STAMPING COMPANY, Rochester, N. Y., represented by J. R. Sackett: Line of Silver, Nickel and Argentine Ware, including Chafing and Baking Dishes, Bread and Serving Trays, Tea and Coffee Pots, Crumb Trays, Heavy Tinware, &c.

PITTSBURGH PLATE GLASS COMPANY, Detroit branch, represented by W. F. Ernst and W. J. Shannon: Large exhibit of Glass, Patton's Sun-Proof Paints, Standard Varnish Company's Varnishes and Rennous, Kleinle & Co.'s Brushes. Souvenir, Dice Box or Savings Bank in fac-simile of Paint Can.

PIKE MFG. COMPANY, Pike, N. H., represented by J. A. Winters: New assorted stock and display boxes of Scythe and Oil Stones. Souvenir, Silver Mounted Oil Stone.

ASPHALT ROOFING COMPANY, Saginaw, Mich., represented by Messrs. Van Atta, Sigler, Seely and Bliss: Samples of Wailgas Composition Roofing, with complete line of superior two and three ply Tarred Felts; also Roof and Iron Paints. Souvenir, package of court plaster.

SILL STOVE WORKS, Rochester, N. Y., represented by B. M. Ross and F. Will, Jr.: Sterling Cast Stoves and Ranges. Souvenir, large calendar, with embossed cut of Has-No-Equal Range.

ACME WHITE LEAD & COLOR WORKS, Detroit, Mich., represented by Messrs. Burnham, Dobson, Whittaker and Wesley: Handsome display of Neal's Enamels and Carriage Paints, New Era Art Wood Finishes, Varnishes and Paints; Wagon, Implement and Floor Paints; Davies Fillers and Stains, Dry Colors, &c.

NATIONAL CUTLERY COMPANY, Detroit, Mich., represented by E. H. Sutton, M. D. Squier and W. H. Brown: Displayed full line of S. & S. Oil Tempered Butcher Knives, Axes, Hatchets, Scythes and Razors. Souvenir, small Sharpening Stone in leather case.

CRIBBEN & SEXTON COMPANY, Chicago, Ill.: Samples of Universal Stoves and Ranges, with striking advertising poster.

HERRARD, SPENCER, BARTLETT & CO., Chicago, Ill., represented by Messrs. Williams, Malbone, Van Leuwen and Greenleaf: Display of Cutlery, Silver Plated Holiday Goods, fall Sporting Goods, Guns and Ammunition, H. S. B. Steel Ranges and Stoves, Sewing Machines, Enamel Ware, &c. Souvenirs, New Blue ash tray, morocco memorandum book and leather Match Holder.

F. W. DEVOR & C. T. RAYMONDS COMPANY, New York and Chicago, represented by J. E. Geary and E. T. Gray: Exhibit of Paints, Oils, Varnishes and Dry Colors. Souvenir, fac-simile can of Mixed Paint in form of bank.

MICHIGAN STOVE COMPANY, Detroit, Mich., represented by R. J. Waddell and O. E. Jennings: New Malleable Gariand Range, new design Cast Range and latest patterns of Base Burners. Souvenir, leather cigar holder.

PETERS CARTRIDGE COMPANY, Cincinnati, Ohio: represented by J. E. Avery: Display of Ammunition. Souvenir, ingenious paper weight and Match Holder in the form of three Cartridges around the base of an upright Shell.

LOWE BROS. COMPANY, Dayton, Ohio, represented by F. O. Downer and E. K. Springer: Attractive display of advertising

matter offered the trade to promote the sale of High Standard Paints. Souvenirs, watch fob and button with the H. S. blue flag trademark.

WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn., represented by Messrs. French and Foster. Souvenir, watch fob.

E. C. ATKINS & Co., Indianapolis, Ind., represented by A. J. Carson and Robert Eveland: Large and prominently advertised exhibit of Saws for all purposes. Souvenirs, miniature Saw stick pin and comb in shape of a Saw.

ESTATE OF P. D. BECKWITH, Dowagiac, Mich., represented by W. T. Leckle, J. A. Howard and D. G. Hughes: Display of Round Oak Stoves, Ranges and Furnaces. Souvenir, China Plate bearing the Indian design, Doe-Wah-Jack.

PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Pittsburgh Perfect Fencing, Wire Nails, Plain and Barb Wire, Staples, Steel Hoops and Bands, &c.

PRINCE STOKOE OIL STOVE COMPANY, Cleveland, Ohio, represented by W. H. Berry: Displayed a line of Oil Stoves and Heaters, Lamp Stoves and Nursery Lamps.

PENINSULAR STOVE COMPANY, Detroit, Mich., represented by Messrs. Wheeler, Millen and Fuller: Exhibit of New Grand Base Burners.

HUNT, HELM, FERRIS & Co., Howard, Ill., represented by Howard Seeley: Exhibit of Hay Carriers, Barn Door Hangers, Star Coaster Wagons, Star Steel Sleds, Lawn Mowers, Tank Heaters, &c.

ART STOVE COMPANY, Detroit, Mich., represented by Messrs. Marentette, Clago and Heath: Exhibit of Laurel Stoves and Ranges. Souvenirs, miniature Hatchet and Pocket Mirror.

CHICAGO STOVE WORKS, Chicago, Ill.: Gold Coin Ventiduct Ranges and Base Burners.

DOVER MFG. COMPANY, Canal Dover, Ohio, represented by O. E. Keyser: Samples of Asbestos Sad Irons.

COLE MFG. COMPANY, Chicago, Ill., represented by F. E. Woolley and O. C. Harrison: Cole's Original Hot Blasts and Steel Ranges.

FLINT VARNISH WORKS, Flint, Mich., represented by Guy Waltes: Display of Architectural House Finishes, Varnishes, Japans, Driers, &c.

MALLEABLE STEEL RANGE MFG. COMPANY, South Bend, Ind., represented by J. R. Gish: Sample of Malleable Steel Range. Souvenir, cook book.

BORDEN & Co., Warren, Ohio, represented by W. W. Thorne: Pipe Threading Machinery, Hand Stocks and Dies.

CO-OPERATIVE FOUNDRY COMPANY, Rochester, N. Y., represented by R. J. Clark: Red Cross Stoves, Royal and Garnet Hard Coal Heaters and Princess Steel Ranges.

KOKOMO STEEL & WIRE COMPANY, Kokomo, Ind.: Kokomo Diamond Mesh and Pioneer Square Mesh Farm Fence, Wire Nails, Barb Wire, &c.

STANDARD LIGHTING COMPANY, Cleveland, Ohio, represented by A. P. Sweetman: Exhibit of New Process Gas and Gasoline Stoves and Ranges, Oil Cooks and Heaters.

## THE HISTORY OF OUR ASSOCIATION.

BY HENRY C. WEBER, DETROIT, MICH.

On July 9, 1895, a small coterie of men, numbering altogether 18, representing 19 different Hardware firms in the State of Michigan, gathered together at the Hotel Cadillac, and there in convention assembled laid the foundation of the Michigan Retail Hardware Dealers' Association. To appreciate the importance of this step it is necessary that we have in mind the condition of the retail Hardware trade prior to that time. There had been no previous effort at organization; in fact, the retail Hardware business was still in a chaotic state; it was just emerging from its undeveloped and pristine state. The rapid growth and the activity of the department stores and mail order houses were retarding its development and united effort upon the part of those who made Hardware their exclusive profession was necessary for the individuality and the life of that business. There was no fellow feeling among those engaged in the same trade. Friendships between rival dealers were practically unknown, and rivalry and competition in business often developed into feuds.

### OBNOXIOUS LAWS,

working hardship upon the merchant, were upon the statute books, the repeal of which no individual alone could accomplish. The enactment of just laws on the subjects of Trusts, Bankruptcy, Tariff, Interstate Commerce, &c., in consonance with the progress of the times, was necessary, of which an intelligent understanding could only be gained by an interchange of ideas among those in like business. Trusts were forming among manufacturers, raising the prices to the consumer and cutting down the profits of the retailer, a condition which a merchant standing by himself alone could not combat. This was the situation when F. F. Carleton of Calumet issued

the call for the first convention of our association, and to him, who became its first president, and H. C. Minnie of Eaton Rapids, its first secretary, mainly belongs the credit for the inception and the success of that first meeting.

The others who were present and who on that account are worthy of mention here are as follows: D. B. Martin of Bay City, Charles F. Bock of Battle Creek, F. D. McDonnell of Bay City, D. W. Bloodgood of Wyandotte, T. Frank Ireland of Belding, John Popp of Saginaw, I. B. Brockett of Battle Creek, D. A. Kanter of Holland, A. R. Barrett of Union City, W. J. Boyce of Port Huron, W. T. Hibbard of Lansing, J. B. Sperry of Port Huron, C. A. Harvey of Morley Brothers, Saginaw; John B. Jochim of Ishpeming, Edward A. Moye of Marquette and Henry C. Weber of Detroit.

These 18 men, fired by the enthusiasm of the two leaders, took on the roll of missionaries and went out to preach the new doctrine, to gather others into the fold. At the adjourned meeting which was held on February 12, 1896, in Saginaw, the membership had already increased to 40. A constitution and by-laws were then adopted and the organization completed. None who was present at that memorable session will forget the rejoicing of the members in the open-hearted hospitality extended by our Saginaw brethren.

### THE SECOND CONVENTION

was held at the Cadillac Hotel in Detroit on July 8, 1896. The roll of members had then run up to 95. At this meeting an important innovation was made; papers on subjects of practical interest to Hardwaremen were for the first time read and the members were, by an interchange of ideas and experiences, given the benefit of the latest and best thought along the lines of their own business. These papers awakened in the individual Hardware merchant a lively interest in matters to which he had given but little or no attention before, and they have become one of the important features of all our meetings. At this session I had the honor to be chosen as your president and Mr. Minnie was continued as secretary.

### THE THIRD CONVENTION

took place at Battle Creek on July 14, 1897. The members then numbered 131. The importance of the association was then already apparent and its influence had impressed itself upon the legislation of the State. At the previous convention C. A. Harvey of Saginaw brought to the attention of the association the imperfect state of

### THE LIEN LAW,

affording little or no protection to the dealer, and it was resolved then to procure the passage of proper laws remedying the condition. In my address as president at the third annual convention it was my privilege to call attention to the fact that due to the efforts of this association and of its members a fair and satisfactory lien law had been passed. At this meeting the late Charles F. Bock was elected as president and Mr. Minnie was again re-elected as secretary. Through the affability, untiring industry and energy of its president the membership of this association was during the succeeding year swelled to 179. Mr. Bock was an indefatigable worker, spending his own time and money traveling through many sections of the State to promote the interests and the welfare of this organization, and the success which he achieved will live as a monument to his memory.

### THE FOURTH CONVENTION

was also held at Detroit, on July 13, 1898, and C. G. Jewett of Howell was made president and H. C. Minnie was for the fourth time elected secretary. At the fifth convention, which again took place at Detroit, on July 12, 1899, Henry W. Webber of Bay City was elevated to the chair and F. H. Cozzens of Detroit became secretary, Mr. Minnie having declined a fifth term. During this administration delegates were sent to represent us and to take part in the formation at Chicago, Ill., of a national organization, which has since become a power for good in the development of the Hardware trade.

The sixth convention gathered at Detroit on July 11, 1900, electing George W. Hubbard of Flint to the presidency and re-electing F. H. Cozzens to his former posi-

tion. At this time the association had again manifested its usefulness in procuring by its united strength the enactment of laws to meet the constantly changing and progressive conditions of trade and commerce.

#### THE GARNISHMENT LAWS

of this State had for many years contained provisions which made it possible for a man of small or medium salary, drawing it weekly, to beat his creditors out of that portion thereof which should rightfully go to them. An amendment adjusting this condition to conform with justice was vigorously opposed by a certain organized element, and it would have been impossible for the merchant single handed to combat against it. Concerted effort through the medium of this organization, however, finally succeeded in procuring a change in the law that is more nearly consistent with justice.

The next three annual conventions were all held in the city of Detroit. At the seventh H. C. Minnie of Eaton Rapids was elected president and Fred H. Cozzens secretary. At the eighth T. F. Ireland of Belding was elected president and A. J. Scott secretary, and at the ninth John Popp of Saginaw was elected president and A. J. Scott secretary.

#### THE TENTH CONVENTION

took place at Grand Rapids on August 10, 1904. The membership was then 224. J. B. Sperry of Port Huron was made president and A. J. Scott of Marine City re-elected secretary. During this vigorous and able administration, the most successful in the history of our association, the membership has risen rapidly and in an unusual degree, so that at the present time the total number is 549. This growth has been so marvelous and could have been attained only by such tireless energy that I hope the appreciation of this association of the thoroughness and efficiency of its faithful officers will be happily demonstrated.

#### OUR FRIENDS.

BY T. FRANK IRELAND, BELDING, MICH.

Listen not to the complimentary words of friends, the pleasing and loving phrases of relatives. If you would know your own worth cock your head to one side and try to hear the criticism of an enemy if you would know who and what you are. Hard knocks make us strong, and if we get enough of them we are often able to meet and overcome the "knocker." Business to-day is hard, merciless and unyielding.

The time was when the Hardware retailer was of some consequence in his own and in the estimation of his friends. He paid long prices, settled when he pleased and ran his business or let it run itself, according to his own sweet will. But times have changed. This, we are told, is an age of commercialism, a day of strenuous life, when the disease "Americanitis" is becoming common.

#### WHERE IS THE EASY GOING HARDWARE MAN

of less than a quarter of a century ago? His lethargy all gone, his is now the best store in your town, he the leading man, the best merchant, the most progressive citizen. His business is not conducted on the lines of his father or father-in-law, but on twentieth century methods in every department.

Of late all our troubles have been laid at the door of the catalogue houses. Can we attribute this metamorphosis to them? Have they spurred us to the keener and better effort or are we following the advice of a few jobbers and many manufacturers who have told us that the catalogue houses would not trouble us if we would only sweep our brains and our stores occasionally. Whatever it may be, there has been a change. All wish to take the credit of this change for the better.

#### ATTACK A STIMULUS.

Attacks from the outside have led us to more vigorous thought and action. Has it been the catalogue houses, the manufacturers, the jobbers or ourselves that have broken the spell of the past and allowed us to look into a bright business future with hopeful eyes.

#### NEW COMPETITION.

Something over ten years ago the Hardwaremen of the Middle West began to feel the competition of the

large catalogue houses of the cities. The matter was taken up in our associations, but with indifferent success. It was hard to get any one interested. At the meeting of the National Retail Hardware Association in Chicago in March, 1903, an invitation was read from the National Jobbers' Association to meet with it and confer with it on this subject. The executive committees of both associations met in Philadelphia May 20 of that year.

At the meeting in Philadelphia we, the retailers, found that the jobbers were with us. A better understanding was reached and work was mapped out. At the next meeting of the National Jobbers' Association a Catalogue House Committee was appointed, with S. Norvell of St. Louis as chairman, who called a meeting in St. Louis in June, 1904. At this time was formed the Joint Wholesale and Retail Catalogue House Committee, composed of the Executive Committee of the National Retailers, the committee appointed by the National Jobbers of the North and also certain members of the Southern Jobbers. You know through the trade papers something of what has been accomplished by this committee.

#### CREDIT IS DUE THE JOBBERS.

In this work the retailers have done what they could, but to the jobbers belongs a large share of the credit, for they have the power with the unruly manufacturer who persists in selling anybody in sight. You know of the meeting of the Joint Committee in New York last November. You have been informed that over 600 manufacturers refuse absolutely to sell goods in any way to the catalogue houses. You have heard that certain large jobbers who formerly poured goods into the catalogue houses will not now do business with them to the amount of \$1. You know all this and know that it has been accomplished by the Joint Catalogue House Committee backed up by the retailers and jobbers of the entire country.

A steady and efficient warfare is being waged. The fight has got so hot for some of the manufacturers that they wish to dodge the issue and are trying to bring the matter of special brands to the front. They see that they have succeeded in getting themselves into trouble and are now trying to throw dust to obscure the main point of contest. With makers selling the catalogue houses their factory brands to be used as leaders, the retailers and jobbers must have special brands. The manufacturers seem to want to blame the jobber and retailer for the birth of the special brand when they themselves are its legitimate and willing parent.

A few manufacturers have done much for us, many jobbers have done more, and it remains to be seen what we as retailers will do for ourselves. Every retailer should join his State association and do his best. Then as we reach the millennium of Hardware retailing we may be able to decide who are and who are not "Our Friends."

#### LOYALTY.

BY E. B. STANDART, HOLLAND, MICH.

We must be loyal or we are nothing. We must be loyal or we fail. Allow me to give you an illustration of loyalty. I live in Holland, Mich. Well, in Holland the people are loyal—now. They were not loyal 15 years ago. Fifteen years ago when people heard of Holland they heard of a village that was nothing more than a dot on the great coast line of western Michigan; they heard of a town that to their minds was simply a place noted for conservativeness—noted for wooden shoes, if you please.

But a few years ago a change came. The people of Holland awakened to the fact that

#### LOYALTY MEANT PROGRESS;

that it meant advancement in commerce, in business, in everything that goes to make a successful city. When the people of Holland found out what loyalty meant, what did they do? They took a long pull, a strong pull and an all together pull—and then something happened. Instead of working at cross purposes all worked for the common good. A bonus fund was raised; industries were induced to move to Holland from other cities; all the merchants

and all the business men, all the doctors and all the lawyers, all the teachers and all the ministers, all the laboring men and all the capitalists, all of the softwaremen and all of the Hardwaremen, joined together and worked for the common cause, and as a result the Holland of to-day is far different than the Holland of 15 years ago. Holland is on the map now and we want every one to know it.

#### APPLIED TO BUSINESS.

As it is with Holland as a city, so it is with Hardware as a business. We must be loyal, we must practice loyalty. Loyalty applies to us all. It applies to the retail trade as well as to the wholesale trade. In the retail trade we may not think that our competitor is all right; in truth, we may know that he is not all right. We may know that he is so selfish that he is afraid to remain in the same room with himself for fear that he may be held up; so selfish that he groans with envy when his competitor sells a \$50 Stove for \$25. But if we are loyal, if we believe in loyalty as a watchword, we will overlook the fact that he is not all right, overlook his treachery in selling a Stove at half price and be loyal enough to the rest of the trade to sell at a fair, an honest and a businesslike price.

#### THE BROAD VIEW.

The idea I wish to bring out is this, that we should be so loyal to the great mass of the trade that we will not make fools of ourselves just because our competing neighbor makes of himself a subject for the fool killer. We should be loyal to our neighbor by being square, loyal to our competitor by being fair and loyal to the wholesaler by being square and fair.

Loyalty means honesty, fair dealing, true business principles. If we practice loyalty we are in a position to give our customers treatment that will induce them to come again, for a customer knows fair, square and honest dealing when he gets it. If we practice loyalty we can ease the burdens on the shoulders of the retailers. If we practice loyalty we can banish sleepless nights from the lives of the wholesalers. In other words, loyalty means being true and honest and fair and sincere and broad with all with whom we come in contact in our business life. Loyalty means giving every man a square deal.

#### BE LOYAL TO YOURSELF

or you cannot succeed. Be loyal to your competitor and success will come easier. Be loyal to your State association, as numbers can accomplish much where a few would fail. Be loyal to the National Association, as its officers stand nearer to and in time will settle the catalogue house question.

#### PARCELS POST.

BY W. P. BOGARDUS, MT. VERNON, OHIO, PRESIDENT OF THE NATIONAL RETAIL HARDWARE ASSOCIATION.

There is perhaps no question so vital to the retail trade, no matter what line it may be, as the question of post parcels, a question whose ramifications reach out to all lines of trade and affect all kinds of retailers; and it is one of the questions that will not be settled until it is settled right.

#### THEORETICAL POST PARCELS

is a dream of certain theorists who look on the Government as a power organized for their protection and upbuilding, a power whose duty it is to care for their individual welfare and success, forgetting that the Government under which we live is a political Government devoted solely to the advancement of our political interests; not in any way a business Government established for the purpose of making money, but established for the purpose of protecting the political rights of the people, such as life, liberty and the pursuit of happiness. To take any other position means that we depend on our Government to help us make a living. Some may say that we do this when we ask for a tariff. But that is hardly fair, for tariffs are made for the country and not for individuals; for the development of industries that will add to our population by increasing the opportunities for work, stimulating immigration, that our land

may be tilled, our factories may resound with the busy hum of whirling wheels, our mines yield their wealth and the white wings of our commerce dot every sea.

#### ONE ARGUMENT.

It is argued by some that the parcels post is for the greatest good of the greatest number; that the consumers will receive the benefit, and as they are the largest majority therefore the enlarged post parcels will be a national benefit. In the development of this idea it is proposed that all the needs of the consumer shall be supplied by transportation facilities furnished by the Government, and so there will be no need of express service or other private means of transportation, for the Government will assume the transportation of all goods and will take care of all of the commerce of the country.

The new scheme suggested by the postal reformers is under the plea that it is a movement of the Manufacturers' Association of New York. In the furtherance of this project there has been issued and sent broadcast over the country a little folder, sometimes blue and sometimes green, purporting to come from the Manufacturers' Association of New York (who these manufacturers are or who are the officers of the association is not stated), urging those who receive the folders to sign their names to a portion of the folder and send it to their Congressmen, and this is what they want sent:

"1. Letters and sealed packages at 1 cent per ounce or fraction.

"2. All mailable matter at a rate high enough to direct the large bulk of merchandise to natural channels of distribution, but low enough to serve the useful purpose of a parcels post."

#### THE 1904 BILL.

In 1904 a measure was introduced in Congress by the postal reformers proposing to carry a pound for a nickel and 11 pounds for a quarter, and in favoring this law they argued as follows: "To the American to-day the most important department of public intelligence is the advertising department. . . . The cent a pound publishers' post makes this news available. Any attack on this service is an attack on every business advertiser in the publishers' columns. The Postmaster-General's proposed increase from 1 to 4 cents per pound in the tax on the circulation of the magazine press would not only do a grievous wrong to the publishers and to the reading public; it would seriously damage the business interests of the country."

#### THIS YEAR,

in arguing for the two rates of postage, they say: "The products of industry and agriculture follow the natural channels of distribution via the transportation lines to wholesaler and retailer. There is one exception. The publishers of second-class matter have a special channel of distribution direct to consumer, provided by Congress—namely, the United States mail. Their product is taken in bulk, without stamps, at 1 cent per pound, while the product of every other industry is compelled to pay 16 cents per pound and stamp each package. The result is that 67 per cent. of the total matter carried is of the second class, which produces less than 4 per cent. of the total revenue. The subsidy to publishers in second-class mail rates precludes the press from printing these facts."

Last year it would be a grievous wrong to increase the tax to the publishers. This year they demand equitable laws that will do away with "the waste and abuse" that prevails "under the laws now operative."

#### PRINTED MATTER NOT MERCHANDISE.

To refer to class magazines and newspapers as mere merchandise is neither fair nor true. The standing of our country among the nations of the world is largely due to the facilities we have enjoyed to gain knowledge and information by the almost universal distribution of the newspaper and magazine that comes daily, weekly and monthly to our homes.

#### THE PROPOSED PLAN IS UNREASONABLE.

for with 1 cent postage on letters and only one other class of mail matter our mails would be burdened with such an amount at so unprofitable rates as to seriously cripple the entire system.

Besides, there is no equity in sending merchandise a long and short distance at the same price. It costs more to send merchandise a thousand miles than it costs to send it one. Now, if that is true, then the act of the Government carrying any merchandise in the mails is radically wrong. It is not fair to charge no more for a long haul than a short one, for the long haul gets transportation for less than it is worth. It is not just to the short haul to pay as much as for the long haul, for then the charge is excessive. It is not equity for an average to be struck between the cost of the long and short hauls, for then some are favored at the expense of the others.

#### THE RESULT.

To carry out the proposed modification of the postal laws would result in throwing the large majority of retail trade to the large cities. "But," says the advocate of the new way, "see what low prices the consumer will get." Is it always profitable for the consumer to get the lowest prices? Does not the consumer pay too much, no matter what the price, when he destroys his home market? Does the consumer gain anything when he sends his money away from home, when he has no selection of the goods he buys, when he has to take what is sent him whether it pleases him or not, when he contributes to the wealth of great city stores who never in any way help him to bear the burden of his taxes, who are interested in none of his home improvements, who add in no way to the tax duplicate of his community, who never buy any of his products and so keep the money he has paid out in circulation in the community where he lives, but are ever a drain on his resources? Do you say that the low prices given the consumer compensate for all these drawbacks?

Will the enlarged post parcels be a good thing for this country if the results follow as they have followed in other countries where it has been thoroughly tried, in the concentration of business in the large cities? Is there any business sense in the Government undertaking to carry merchandise at 5 cents per pound through the mails when it costs 16 cents per pound for transportation and the other necessary expenses for handling? Can we in-dorse any line of action on the part of the Government that looks to its entering into active competition with the citizen in business enterprises?

#### POST PARCELS IS A DELUSION,

the scheme of radical men who look to countries governed by monarchs and kings for their inspiration and who are willing to have our Government supply our wants and minister to our comfort. It is not favor that we want, but a fair chance to earn an honest living in competition with our fellows.

### NEW YORK STATE ASSOCIATION OF RETAIL HARDWARE DEALERS.

**J.** B. FOLEY, Syracuse, N. Y., secretary of the New York State Association of Retail Hardware Dealers, has just finished the work of mailing both to members of the association and other merchants throughout the State a copy of the proceedings of the annual meeting at Buffalo last March. It was Mr. Foley's intention to send every Hardwareman in the State a copy of this book, but if any have been omitted they will be supplied with a copy on application.

The Board of Directors of the association met in the Yates Hotel, Syracuse, about two weeks since, and among other things fixed the date for next year's meeting. It will be held in Binghamton on February 20, 21 and 22. The secretary is receiving applications for membership right along, and the association is reported in good condition financially.

A committee of which John G. Ferres of Johnstown is chairman is working on the revision of the constitution and its report will be submitted at the Binghamton meeting. Members are said to be taking out insurance freely in some of the Hardware mutual companies, and the general tone of the membership is very encouraging.

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## FACTORY COST AND BUSINESS METHODS.

### THE YALE & TOWNE MFG. COMPANY'S PRIZES FOR SUGGESTIONS.

THE YALE & TOWNE MFG. COMPANY, Stamford, Conn., has awarded its first set of prizes for suggestions among its employees under a system inaugurated six months ago. The company is convinced that the plan has fully met expectations, for in half a year 1700 suggestions have been received, and though but 25 per cent. of the number were accepted these have more than paid financially for all that the plan has cost, to say nothing of the better feeling aroused among the better class of employees.

The company offered two series of prizes, semiannually, amounting in all to \$600, one open only to salaried employees, foremen and contractors, the second group being open to all employees not included in the other class. The scope of the plan and many of the details of its operation are explained in the following circular issued to employees:

#### PRIZES FOR SUGGESTIONS.

The company desires to encourage its employees to co-operate with the management to secure improvement in its products and in all branches of its business, and to this end has adopted a plan whereby employees may have an incentive to make suggestions with the assurance that all such suggestions will have careful and impartial consideration. Should such suggestions prove of value the suggester will thereby qualify to compete for a series of prizes to be awarded semiannually to employees offering the best suggestions.

Suggestions are invited from all classes of employees. No suggestion need be held back because it appears to be of little importance. The simplest ideas are often valuable.

Suggestions lead to promotion and increased value. They show an interest in our work and organization, and a capacity for greater responsibilities. We invite suggestions upon mechanical improvements of product or equipment, methods which will facilitate prompt shipment of orders, improvement in factory systems, decreased cost of manufacture and other matters calculated to advance the interests of the company.

#### Rules Governing Suggestions.

1. The officers of the company, superintendents, assistant superintendents, draftsmen and experimental men, and employees of corresponding rank, are not entitled to compete for any prize.

2. The Suggestion Bureau will be under the supervision of a committee of three employees, who, by virtue of their position in the management, are disqualified for competition for prizes.

3. Suitable boxes have been placed throughout the works and blank cards provided on which employees may record their suggestions. Write your suggestion upon the card provided and place it in the box. Cards will be collected weekly.

4. Suggestions will be considered by the committee, and, whether accepted or rejected, will be acknowledged by its secretary, in order that the employee may be advised as to the disposition of his suggestion. For each suggestion accepted, whether it relates to an improvement or modifies instructions which the author of the suggestion has no authority to change, the company will award the suggester the sum of \$1, the same to be paid by the paymaster upon presentation of an order which will be sent to the employee when he is notified that his suggestion has been accepted. The company will then be at liberty to adopt the suggestion at any time at its option. Orders for suggestions may be cashed any working day between 12 and 12.15 m.

5. The name of the suggester will be treated as strictly confidential, and will not be revealed without his consent until the awards have been made, as hereinafter provided.

6. No time, materials or other property of the company shall be used in developing any suggestions without the consent of an official of the company.

#### Prizes.

The company will award semiannually the sum of \$600 for the most valuable suggestions received during the previous six months. This amount will be divided between two competitive groups, as follows:

#### General Competition.

(SIX AWARDS, AMOUNTING TO \$150.)

Open only to salaried employees, foremen and contractors.	
First prize.....	\$50.00
Second prize.....	40.00
Two prizes, \$20 each.....	40.00
Two prizes, \$10 each.....	20.00
Total .....	\$150.00

#### Workmen's Competition.

(29 PRIZES, AMOUNTING TO \$450.)

Open to all employees not included in the "General Competition."	
First prize.....	\$50.00
Second prize.....	40.00
Five prizes, \$20 each.....	100.00
Eight prizes, \$15 each.....	120.00
Fourteen prizes, \$10 each.....	140.00
Total .....	\$450.00

#### Method of Awarding Prizes.

On the 15th of January and July of each year employees who have made suggestions of the greatest value during the six months preceding the 1st of January and the first of July will be awarded prizes in their respective groups in the order of the importance of the suggestion.

As soon as the awards are made the prizes will be paid in cash, and notices will be posted giving the names of the prize winners, together with a brief description of their suggestions.

#### Committees.

For the year 1905, and until further notice, the Suggestion Bureau will be in charge of a committee of three, consisting of Walter C. Allen, chairman; E. B. Hindley, secretary, and Joseph A. Horne. The determination of awards will be made by this committee in consultation with the general superintendent, F. T. Towne, and the superintendent of design, W. H. Taylor.

The success of this plan, as shown by the satisfaction of the company with the results obtained, is exceptionally interesting, and suggestive of the possibility of its being applied, with variations to suit conditions, to other lines of manufacture, both in Hardware and in general lines of product. The two results are important, first the receiving of at least full value for the money and trouble expended; and, secondly, in bringing employer and employee closer together. It is to be presumed that of the suggestions which were awarded prizes some were found that were truly important in bringing about better and more economical methods of manufacture, and probably most of these suggestions would not have been made had it not been for the spur of the money award and the honor which accompanied it.

The presentation of the prizes, July 22, was made a notable occasion, the 2000 employees assembling in the large foundry to listen to the awards.

### GLEN MFG. COMPANY.

THE GLEN MFG. COMPANY, Ellwood City, Pa., maker of Steel and Wire Specialties, has been forced to add 9600 square feet of floor space to its already large plant owing to the heavy demand for Hartman Fences and Specialties and for the Glen Steel Folding Mats. The Glen Company purchased the Hartman Mfg. Company's business from the hands of the receiver last January, and merchants who have handled the Hartman line for the past 17 years seem to appreciate the fact that they can again secure the goods, and have sent in their orders in large volume. The company is exceptionally well situated to take care of this business, having a siding arrangement with four railroads. It always has on hand a large and well assorted stock and can make shipment of stock orders the same day they are received. The company is making every effort to again place the Hartman goods at the front. During the 17 years of their manufacture these products have been advertised and shipped all over the world. The company has also made a large appropriation for advertising its product during the coming fall and spring, and expresses its intention to turn the inquiries thus received over to merchants. The Japanese, who have shown their wonderful adaptability to modern ideas, long since recognized the merits of the Hartman Steel Fences and have

been using them in large quantities for years past. The company is running its plant double turn, night and day, to keep up with increased business. The company also manufactures Iron Fences in large variety, Fire Escapes, Elevator Cages and a general line of Wire and Ornamental Iron work, and is prepared to send catalogues to the trade covering its lines.

## RUSSIAN RECIPROCITY AND THE HARDWARE TRADE.

INTIMATIONS of a more or less authoritative character have appeared from time to time in the daily press to the effect that the question of retaliatory or "countervailing" duties, levied upon our manufactures by the Russian customs service, is in a fair way of settlement. It is sincerely to be hoped that these assurances are not made without sufficient warrant. The expectation that a satisfactory agreement had been or was about to be reached by our representative at the court of Russia may be sufficient to hold back for a time the expression of regret on the part of our merchants and manufacturers to which these obnoxious duties and regulations have given birth; but hope deferred maketh the heart sick, and a trade, not merely of Hardware, but of all commodities, which even yet amounts to between 17½ and 35 million dollars a year, is not likely to rest contentedly upon bare words, no matter how hopeful or optimistic. We say 17½ to 35 millions, because there is

### A GREAT DISCREPANCY BETWEEN THE AMERICAN AND RUSSIAN OFFICIAL ACCOUNTS

of this trade. According to our accounts our average annual exports to Russia of all commodities during the past two years amount to about 17½ million dollars, while the Russian accounts measure them at about twice this figure. Whether this is owing to different valuations of the same commodities, to indirect trade or to faulty statistics need not at present be discussed.

### THE PRINCIPAL TRADES

between Russia and the United States consist on the one hand of our exports of raw cotton, ingot copper and manufactured Hardware, chiefly Agricultural Implements and, on the other hand, of our imports of peltries, hides and wool. So restricted a commerce between such extensive and populous countries is much to be wondered at, but as this restriction is in some measure due to circumstances connected with the almost stationary condition of the great empire which stretches from Bering Strait to the Baltic Sea there seems no help for it until the reforms called into existence by the abolition of serfdom, and since that time unceasingly promoted by M. Sergius Witte, the statesman who is now engaged in the peace conference at Portsmouth, have had time to mature.

### PROMOTION OF RUSSIAN INDUSTRY.

One of the great objects pursued by M. Witte has been the promotion of native Russian industry, his contention having been that agriculture alone was an insufficient and precarious basis of national advancement. In furtherance of this object he has persistently followed every opening which promised to lead his people from the fields into the workshop, and the two most hopeful of these industries were the *koustari* or small manufacturing industries and the sugar refineries. The former consist for the most part of wooden wares and hand metal industries such as *mujiks* had been accustomed to pursue during the long Russian winters when no work on the farm could be done. These industries Mr. Witte organized, encouraged and ripened into important sources of national income and wealth. It is, however, with the sugar refineries that Americans, and especially the manufacturers of American Hardware and Agricultural Implements, are more immediately concerned.

### SUGAR AND HARDWARE.

Sugar refining is not a new industry in Russia. A refinery for treating cane sugar was established at St. Petersburg so long ago as 1719, and another one at Moscow six years later. By the end of the eighteenth century there were seven refineries in operation, all working

on imported cane sugar. The first beet root sugar refinery was established in 1802 at Alliabef, in the Province of Toul, near where Tolstoi now resides. From this time to the year 1880 the industry exhibited a continual growth, but it was not until the last named year that its product more than sufficed for the domestic consumption of refined sugar. From 1890 to 1894 the constant average number of refineries was 225, transforming the produce of 770,119 acres of beet root culture. From 1895 to 1899 the constant average number of refineries increased to 242; in the last named year it was 268; in 1903 it was 275; in 1904 it was 276, and now it amounts to about 280, of which about one-half are formed into stock companies, while the remainder are owned and operated by private individuals. The product of 7½ million tons—metrical tons—of beets in 1903-4 was 1,660,660 tons of sugar; for 1904-5 it is estimated at 945,370 tons, the area of land devoted to the culture of sugar beets varying at the present time from 1¼ to 1 1-3 million acres, an industry of no mean proportions.

We now come to the point where this industry has to do with our Hardware trade. The trouble arose out of, or was accentuated by, our act of 1890, which awarded a bounty of 2 cents per pound on fine white and 1¼ cents per pound on white sugars of American growth and refinement, such bounties to remain in force for 14 years from July 1, 1891. Without following this legislation, its application, operation or numerous consequences, it will be sufficient to say that it has entirely discouraged the importation of Russian refined beet root sugars into the United States; so that while in 1899 these importations amounted to \$340,815 and in 1901 to \$738,684, they fell in 1902 to \$29,193 and in 1903 and 1904 to nothing.

### RETALIATION.

Foreseeing the operation of the American sugar bounties upon Russian refined sugars the Russian Treasury clapped an extra 30 per cent. in duties on certain classes of American manufactures, embracing certain Hardware. It has been alleged that these extra duties, which were imposed by Imperial decree of February 4-17, 1901, were in response to Secretary Gage's circular of February 14, 1901, imposing (under the Dingley tariff) "countervailing" duties on Russian sugars and first laid upon an invoice of sugar imported into Baltimore in July, 1899. This being a question which hinges upon dates, it may be left to the almanac makers. The important point is not why Russia imposed these extra duties, but whether we can arrive at a mutual understanding by discussing the entire subject in a calm and deliberate manner. The sugar people say that this cannot be done, that Mr. Gage's "countervailing" circular can only be repealed by Congress, and that Russia must either repeal the extra duties on American manufactures or else repeal that provision of her laws which, while it imposes a tax upon Russian sugar consumed at home, imposes no tax upon sugars exported. Mr. Gage and our Supreme Court have held this to be substantially a bounty upon exportation and therefore amenable to our Dingley tariff. It is in reference to the operation of these duties and their influence upon American trade that the American Ambassador to Russia is now exerting his influence to modify the imposts of the Russian fisc.

### OTHER DUTIES.

But if his good offices proceed no further than this they will hardly have the effect to increase the trade between the two countries. Besides retaliatory duties, the Russian Treasury levies double duties on all goods found to be short or over weighted to the extent of 5 per cent. compared with the invoice weight; for difference in quality two-thirds excess of duties are imposed and for difference in number of pieces, double duties.\* These regulations, more than the countervailing duties themselves, have tended to reduce the trade, and if the latter are modified without the former the result can hardly prove to be of much benefit.

### GERMAN HARDWARE TRADE WITH RUSSIA.

The insignificant proportions to which our Hardware trade with Russia is confined and the extent to which it

\*Commercial Relations, No. 285, p. 961.

might be increased through prudent negotiations are best shown by comparing it with the Hardware trade between Germany and Russia. Of course proximity and cheap freights have had much to do with it, but these factors are not everything. Germany has had to supplant the British Hardware trade, which formerly entirely supplied Russia, by copying English models and underselling them; then it had to supplant the native Russian manufactures by copying Russian models. All this it has done, and done with great address. The result is that Germany now supplies 95 per cent. of Russia's imports of Single and Double Plows, Drills, Broadcast Seeders and hand and horse-power Thrashing Machines. In 1900 she supplied her great neighbor with \$111,000,000 worth of Iron Ware and Agricultural and other implements and machinery, Great Britain coming next with \$66,000,000 worth of the same class of goods. The United States, the greatest producer in the world of coal, iron, Hardware and Agricultural Implements, follows a long way behind, with \$3,000,000 or \$4,000,000 worth of similar goods. The disparity leaves much to be desired.

#### RECIPROCAL AGREEMENT DESIRABLE.

It is to remove this and similar disparities, by affording a more liberal vent to the exports of both countries, that efforts are now being made to place this trade upon a footing of reciprocity. The proportion which Russia could supply of our requirements of refined sugar seems too small to permit this article to stand in the way of a reciprocal agreement. There are also some other items in the trade which could with advantage be arranged so as to invite and encourage an increased demand for our Hardware and Agricultural Implements, a class of goods in whose manufacture we admittedly excel and whose merits are well known in European Russia, the Caspian region and Siberia. The termination of the Japanese War, which now appears to be within sight, will doubtless call for new supplies of these goods for agricultural Russia, and it is to be hoped that in view of this important contingency no efforts will be spared to reach a satisfactory conclusion with the Russian fisc upon mutually beneficial terms.

#### TELEPHONE RATES.

THE Merchants' Association of New York City has recently issued a report on telephone rates in which the results of an investigation made by a committee representing the association at the invitation of the New York Telephone Company are set forth. The proposition of the company was accompanied with an offer to establish a new tariff if it was found that its profits exceeded 10 per cent. of the capital invested. The accounting work was performed by an audit company, whose experts found that the net earnings for the 15 years ended December 31, 1903, averaged 10.89 per cent., though for the year 1904 they amounted to 14.64 per cent. In consequence of the revelation thus made the company about two months since diminished its charges for various classes of service from 10 to 20 per cent.

One of the most instructive features of the report deals with various methods of regulating telephone rates which have been adopted. It is shown that competition is open to several objections. In Philadelphia and Baltimore it failed to insure a reduction. A divided service usually impairs freedom of communication. Besides, the creation of rival plants involves an economic waste. Legislative control has drawbacks of another kind. Most propositions of that sort contemplate a restoration of the old-fashioned "flat rate"—a uniform charge for all patrons. The investigating committee of the Merchants' Association deems the principle underlying such a system harmless in small towns, but inequitable in large cities. It approves the plan of adjusting the rate to the number of messages, and holds that the operating company can best organize a schedule that will be equally just to all classes of subscribers. A third plan for effecting a reduction in charges is that pursued in New York City. It is based on the publicity given to the details of its business by the corporation conducting the telephone service. In the present instance it has worked admirably, both the company and its patrons being benefited.

## Correspondence.

### SOME QUESTIONS SUGGESTED BY MR. SIMMONS' LETTER.

*To the Editor:* After reading your able exposition of the jobbing and manufacturing attainments of one of our special brand friends there comes to the subscriber one question, and he would like to ask it and at the same time make a few statements. The letter stating that this large Hardware concern manufactured its own special brand goods was little or no surprise, but after reading it there comes to every manufacturer the question whether or not its author as a manufacturer would be willing to sell his goods to another with a different brand on them. Dare we ask the gentleman to explain how it feels to exploit special brands which cease to be this when he becomes their manufacturer? Can he explain how he is willing to stake his manufacturing reputation against the special brands sold by others which we know are of the "made to sell" variety? Is not the fact that he has been forced to manufacture his goods in order to sustain quality a proof in itself that the usual special brand deteriorates in quality as its manufacture is shifted from house to house in the endeavor to lengthen the percentage of profit on what purports to be the same article?

We have never stated an opinion of the quality of the goods made by the author of this letter, but his acknowledgment that the brand of the jobbing house is his own personal manufacturing trademark leads us to the opinion that the goods are something he is willing to put his own name on. Looking at this from another point, some of our catalogue house friends are not so bad as they are painted, because they are also their own manufacturers.

The similarity of his position to theirs would lead one to suppose that both had found at about the same time that a trademark and a manufacturing plant are a better security against cut quality than a purchasing agent's desk and a shifting source of supply.

On the other hand, we can prove the correctness of the manufacturer's stand from our own experience and the files of our past correspondence. Some years ago we were approached by a jobber with most attractive offers for us to manufacture for a space of two years some thousands of dollars' worth of our class of goods, making him quarterly shipments against sight draft with bill of lading. We refused to give this gentleman an opportunity to make us competitors of our own goods, and as his market was restricted to a certain quarter we felt that he proposed to push these goods out (if he could have bought them) at the lowest possible margin. About 18 months after our refusal to take on this work we received a carbon copy of a circular letter, made out by a man who was a little green at the business, asking for prices on about the same amount of goods at the same terms and containing this phrase, "To be like or as good as (our name) goods and packed in the same manner." We have since been dealt out the same letter again. Nobody but one entirely unused to the tricks of purchasing agents could be misled by the earmarks of this correspondence. Are we to suppose that at the beginning of the third period of this concern's exploitation of these goods they were of the same quality as at first or that they cost it as much? Competitive bidding would reduce the price, and we well know that reduced price carries with it inevitably reduced quality.

The manufacturer who objects to the form of competition contemplated by this manufacturer-jobber will be hard to find. Here is a man who is willing to manufacture, to put his own money in a costly plant and to back the quality of his goods with dollars. His output and success depend upon his manufacturing ability and the inventive and constructive genius of his employees and himself. We do not think that we can but welcome his advent as a confessed manufacturer. But we deprecate the license given to small jobbers by smaller manufacturers who are willing to hide for a season the results of their labor under a special brand, knowing full well that the next time the contract is let they will have to reduce price and quality or lose the job. It seems almost

foolish to think that a manufacturer can think so little of his ability to make and sell a good article. He must think still less of his ability to sell what he has made.

We would like to ask in closing if the writer of the letter to which reference is made above does not consider that his brand is now better established when he knows exactly what he has put into it? And we wonder how many times he changed his source of supply in those 33 years of business before he became his own manufacturer. We wish to thank him on behalf of the manufacturers for giving the special brand proposition such a decided downward push.

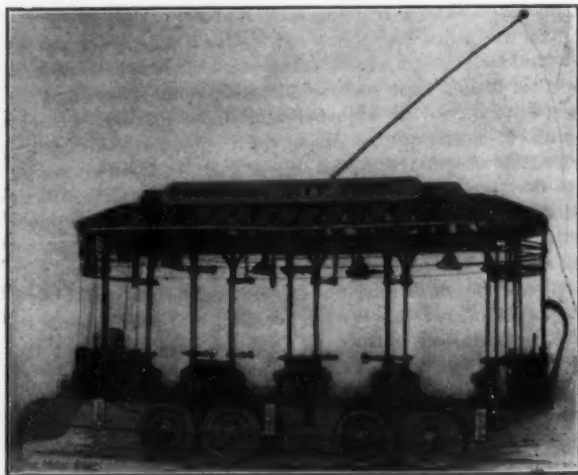
BUYER.

## TRADE WINNING METHODS.

*This department is for the description of approved methods of carrying on and extending business, and a cordial invitation is given to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.*

### TROLLEY CAR IN THE WINDOW.

A TROLLEY CAR fashioned out of articles regularly carried in stock was used as a show window exhibit by the Prusia Hardware Company, Fort Dodge, Iowa, and attracted much attention from passersby. J. Roy Frank, an employee of the firm, was the designer and builder of the car. The car was 5½ feet long, 2 feet wide and 5½ feet high. The frame consisted of Squares put together with 7 x 9 Shelf Brackets and fastened with Tea Kettle Knobs and Quilting Frame Clamps. The front was formed with Web Saw Blades and the roof of Buck Saw Blades. The eaves were made of Drip Strips folded over and short pieces soldered on and hooked



Trolley Car in the Window.

over the top of the frame. Drip Pans formed the center piece on the roof. The trolley pole was a cane pole fastened with a Spring Hinge, a Screw Pulley supplying the trolley wheel. Foot Mats furnished the car floor and the seats consisted of .16 gauge Shells for legs and glass for the bottoms. The backs were also .16 gauge Shells, the ends and middle arms being Cartridges. The car fender was formed out of Sand Screen. The brake was an Egg Beater and the motor lever a Window Catch surmounting a Cream Whip. The rods from which the hand straps hung were Floor Brush Handles and the straps were Safety Chain. The side steps were Buck Saw Blades supported by Drip Strips. Eight-inch Pot Covers supplied the wheels and Speaking Tubes the axles. The hubs were Oil Can Caps. The frame of the car was set upon tin Bread Pans. The vehicle was fully equipped with electric lights and was attractively trimmed with Brass Safety Chain.

## HINTS TO HARDWARE MERCHANTS ABOUT GETTING NEW BUSINESS.

*Established trade will take care of itself, but the new customer of to-day is the old one of to-morrow, and so the paths and byways of every Hardwareman's individual territory ought to be gone over frequently for the new customer. He exists, so all that need be done is to find him.*

BY H. A. JOHNSON.

### I. THE CARPENTERS' TRADE.

In a community of say 25,000 people there are probably 150 carpenters. Now there's no member of the community who relies on a Hardwareman more than does the carpenter. Every possible effort ought to be made by the Hardwareman to keep the carpenters of his town in good humor and friendly to the extent that they'll buy their tools and supplies at his store.

#### The Boss Carpenter.

The master builder, contractor or boss carpenter particularly ought to be made the subject of study. Every one of them has great power for good. Not a job can he handle, be it big or small, into which Hardware does not enter. From Nails and Screws up through the line to Builders' Hardware the boss carpenter has it in his power to add greatly to a Hardwareman's profits. Now such a man cannot be placated by any but high class methods. His weakness may be fishing, or it may be hunting, or it may be spending the winter in Florida. Whatever it be, the Hardwareman ought to know it, talk about it when he comes in, appear to take an interest in it and to hunt up things on the subject, or cut pertinent clippings as they appear, just to show to the man. This is a method that has surprising results. These are days of fierce competition, but fierce though it be, any traveling salesman will tell you that it is well worth while to study the ways, the weaknesses, the fancies and the foibles of a customer. So much for the "big" carpenter.

#### The Journeyman.

The rank and file of journeymen carpenters are well paid, as mechanics' salaries go, and they are sober, industrious citizens of the right sort who oftentimes own their own homes. Let us take just such a man and let us fancy him getting home tired from a hard day's work on a house building scaffold. He is tired, but he washes up, perhaps shifts his clothes and sits down while supper is being prepared. Presently his wife comes in and hands him a letter, which she had put up against the kitchen clock so she wouldn't forget it. It reads like this:

Mr. V. G. Carpenter, 15 Prospect Street, Poughkeepsie, N. Y.

Dear Mr. Carpenter:

Mr. Catchem remarked to me the other day that he hadn't noticed you in the store of late, and I confessed I hadn't either.

We hope you haven't forgotten us; this letter proves we haven't forgotten you.

Perhaps you have a grievance against us that is keeping you away. If that be so, we want to say right here that we are both sorry and glad. Sorry in the sense that hard feelings ought not to be a part of this happy world, and glad in the sense that this letter will give us the chance of knowing all about it and of doing our utmost to correct it. So speak up.

If, however, you have been staying away because you haven't needed the things we have, then we must congratulate you on not having had any tools stolen or borrowed, or broken, and upon taking such good care of your tools.

We have all the new tools. We want you to know, too, that nearly all of our stock has been remarked and prices changed. No one is getting rich in the Hardware business nowadays, for margins of profit are vastly decreased. We know our prices are as low as they can be put, but we want you to know it, too.

And don't forget that we have things for the home and garden. Any time Mrs. Carpenter needs anything for the home, tell her we will take good care of her here.

Very truly yours,

HUSTLE-CATCHEM HARDWARE COMPANY,

D.G.H.-E.

Per HUSTLE.

Now, there isn't much chance of that man tearing that letter up in disgust, is there? There is nothing in it that

is calculated to cause heartburn, or to arouse any animosity. He reads it through, and then again, for he is not overburdened with mail, except around election time, so that the letter is more or less of an event to him. "Pretty good men, those Hustle & Catchem chaps," he remarks to his wife, as with her and their children he sits down to dinner. Then he tells her what they have written him, and tells her what they said of interest to her. This pleases her, and she thinks of something she saw in their windows.

#### Valuable Discussion.

The next day, at dinner basket time, he tells the other men on the job of the letter, and shows it to them. The others have received copies of the same, and they all talk over the Hustle & Catchem Hardware Company, its methods and its men. There's bound to be a dissenter, and by the same token there are bound to be Hustle & Catchem champions. They argue it over, and the Hustle & Catchem Company get the benefit of the discussion—voluntary advertising of the sort that energy, progressiveness and up-to-dateness always engenders.

#### The Method of Using

this letter is as follows: Compile a list to include the name and home address of every carpenter and cabinet maker in your city. Have the letter typewritten, and copied either by mimeograph method or printed, the name and address inserted on the typewriter, using the firm stationery. They can be sent out under 1 or 2 cent postage, but the 2-cent stamp is best. Counting stationery, stamps, printing and time, a list of 200 wouldn't cost over \$8, and it will be the best investment that could be made.

#### REQUESTS FOR CATALOGUES, &c.

*The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.*

**REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:**

FROM W. H. H. DAVIS, Albion, Neb., who has purchased a store and will conduct the Shelf Hardware, Stove, Tinning and Plumbing business.

FROM THE POPULAR HARDWARE STORE, Burlington, Iowa, Bert Copp and Louis Brand, proprietors, who have a newly finished store and fresh stock of Hardware, with shop equipped with latest improved machinery.

FROM C. E. MOORE, Athol, Kan., who has succeeded Hudson & Moore in the Shelf and Heavy Hardware, Stove, Implement, Paint and Oil business.

FROM THE LARIMORE HARDWARE COMPANY, Oklahoma, City, Okla., which has been incorporated with a capital of \$50,000 by Joseph Swaney and others to conduct the wholesale and retail business.

FROM THE CARPENTER HARDWARE COMPANY, New Castle, Ind., which has succeeded the firm of Carpenter & Souder, dissolved.

FROM KING & HALL, who have engaged in the Shelf and Heavy Hardware, Stove, Implement and Sporting Goods business at Scott's Bluff, Neb.

FROM J. L. CASTLE & Co., who have opened a new Hardware, Stove, Implement, Paint, Oil and Harness store at Dayton, Ore.

FROM CRELLIN BROS., Pender, Neb., who have purchased the retail Hardware business of Henry Bayer.

FROM CRAWFORD-MARSHALL COMPANY, Vancouver, Wash., which has sold out its Implement and Vehicle stock but will continue in the wholesale and retail Hardware, Stove, Paint and Plumbing business.

FROM GEORGE L. REIGER, East Brady, Pa., dealer in Hardware, Stoves, Buggies, Implements and Harness, who has recently remodeled and enlarged his store.

#### AMONG THE HARDWARE TRADE.

E. D. Griswold & Co., Springfield, Ill., dealers in Stoves, Tinware, Sporting Goods, furniture, &c., have recently suffered quite a heavy fire loss, which, however, was fully covered by insurance.

Johnson & Abild, Hardwaremen, of Onawa, Iowa, have been succeeded by Goodburn & Abild.

A. G. Austin & Co., for 40 years in business at Terre Haute, Ind., have sold out to the Austin Hardware Company, which will continue the business.

Henry Evans & Co. have recently opened a Hardware, Farming Tool, Sporting Goods, Paint, Stove, Tin and Wooden Ware store in Rochester, N. H.

S. O. Spencer has lately embarked in the Hardware business at Fort Scott, Kan.

The Smith Hardware Company, West Blocton, Ala., will move its stock on October 1 to Ensley, Ala., where the company will conduct a retail business in Light Hardware, Tools, Sporting Goods, Stoves, &c.

#### MISCELLANEOUS NOTES.

##### Colt's New Police Positive Revolver.

Colt's Patent Fire Arms Mfg. Company, Hartford, Conn., is about placing on the market a new .38-caliber police positive revolver which is but a trifle heavier than its similar models in caliber .32. The safety device is referred to as being absolute and so arranged that the wearing qualities are not affected. The firearm is alluded to as a compact yet powerful pocket revolver of simple mechanism.

##### Bull Dog Wrench No. 2 1-2.

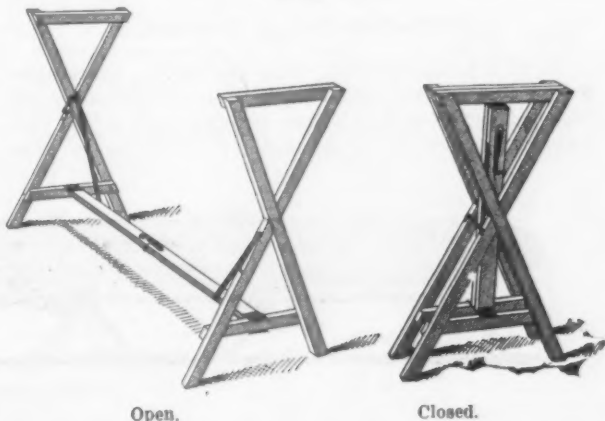
Whitman & Barnes Mfg. Company, Chicago, Ill., has recently added to its line of Bull Dog wrenches a No. 2½. This wrench is 12½ inches long, holds pipe from ¾ to 1 inch in diameter and round iron from ¾ to 1¼ inches in diameter. It is drop forged from special steel and nicely finished in black with polished jaws.

##### Toggle and Expansion Bolts.

The Steward & Romaine Mfg. Company, 124 North Sixth street, Philadelphia, Pa., has during the year added several new specialties to its line. These include No. 4 style steel toggle or anchor bolts, the Philadelphia Star screw anchor and expansions without bolts.

##### The Lady's Friend Ironing Board Stand.

In the accompanying illustrations an ironing board stand is shown both open and closed. It is made of oak,



The Lady's Friend Ironing Board Stand.

light, yet rigid and strong when extended, and thoroughly braced so as to be firm when ironing in any direction.

Any style board may be used with the stand, the supports being at the end and the arrangement of the braces such as to permit of an entirely clear space under the center and greater portion of the board. The stand may also be used for a number of other purposes, supplying the need of a portable table for various requirements. When not in use the stand may, as shown in the illustration, be closed up in a compact manner, taking up but little space. Its weight complete is about 8 pounds and it measures, extended, 3 feet 7 inches and is 2½ feet high. The stand is offered by the Household Mfg. Company, Royersford, Pa.

#### Assorted Padlocks on Display Boards.

The display board shown in the accompanying cut represents one of eight assortments put up by S. R. Slaymaker, Lancaster, Pa. The full size of the board is 12½ inches wide and 18 inches high to the top of the shackle. The boards are made of heavy binder board, which is re-



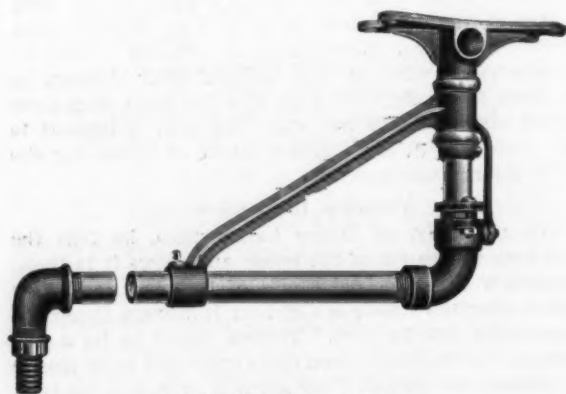
Assorted Padlocks on Display Boards.

ferred to as not warping or getting out of shape. The boards are provided with a detachable wire easel back, permitting display by either standing or hanging. The shackles of the locks are secured through tinned steel eyes so that the locks may be unlocked and quickly removed and replaced. The keys are fastened together by a ring and secured on the board by means of a hook, allowing instantaneous removal and replacement. For shipment two cards with locks and keys attached are packed in a strong, seamless fiber board box made especially for the purpose. The boards are made in stock shape, shown in the illustration, with eight different assortments, made up of 1-12, 1-6 and 1-3 dozen padlocks of a kind. Special assortments are mounted to order.

#### Perfection Buggy Washer.

Ryan & Long, Appleton, Wis., are offering the vehicle washer shown herewith. The hose arm swings on a plate fastened to the ceiling of the building and is 4½ feet long, thus describing a circle 9 feet in diameter. The

biles, wagons and other vehicles, as by its use the amount of hose required to reach all parts of the vehicle is re-

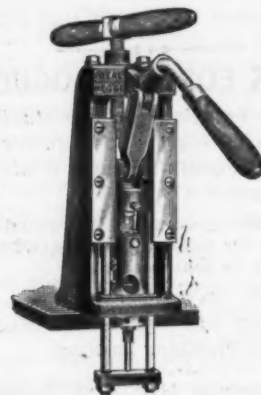


Perfection Buggy Washer.

duced to a minimum, while in addition to this there is comparatively little wear on the hose section used.

#### New Ideal Bullet Lubricating and Sizing Press.

The press shown in the accompanying illustration is designed especially for use in military armories or where large quantities of bullets are made. For this purpose it is made especially large and strong to withstand the constant hard use to which it is subjected in such places.



New Ideal Bullet Lubricating and Sizing Press.

The press weighs more than three times as much as the small press made by the same company, but the same dies and punches that fit the small implement also fit the one illustrated, so that those having the smaller implement who desire the larger press may purchase it without the tools. The implement is placed on the market by the Ideal Mfg. Company, New Haven, Conn.

#### Flexible Flyer Sled No. 6.

S. L. Allen & Co., 1107 Market street, Philadelphia, Pa., have added this year to their line of Flexible Flyer sleds the one shown in the accompanying cut. Heretofore the concern made only five sizes, but the new size will carry six grown persons and is designed to successfully compete in every way with double runners or bobsleds. It is referred to as particularly fast, light and strong.



Flexible Flyer Sled No. 6.

joints under the plate are ball bearing. Retaining arms support the revolving parts and the hose arm. The parts are made of malleable and wrought iron. The device is designed to facilitate the washing of buggies, automo-

In size the No. 6 is 101 inches long, 8¾ inches high, 16 inches wide and weighs 41 pounds. This is steered in the same manner as the other sizes of Flyers, without touching the feet to the snow or ice.

## Globe Trotters' Little Barber Shops.

James H. Flagg Cutlery Company, 29 Murray street, New York, is putting on the market several practical and unique novelties for fall trade, among which are the



Fig. 1.—Globe Trotters' Little Barber Shop No. 1.

shaving sets here shown. Fig. 1 illustrates what will be known as Globe Trotters' Little Barber Shop No. 1. It contains one patented razor with seven fine blades that are

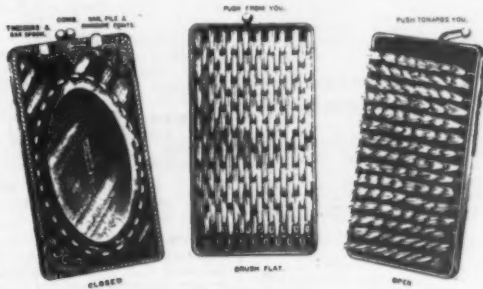


Fig. 2.—Patented Military Toilet Set, Assembled in One Piece.

interchangeable and can be supplied in narrow, intermediate or wide blades, according to specification; one patented fine military brush with comb, tweezers, nail file and mirror (see Fig. 2). The latter article is a handy

combination in itself, in size  $4\frac{1}{4} \times 2\frac{1}{4} \times \frac{1}{4}$  inches, about size of a small card case. By a patented device the white bristles lie flat, except when being used, when they are all turned from a horizontal to vertical position by one slight push of top lever, there being an oval beveled mirror clamped to the front of the metallic case, in dimensions  $3\frac{1}{4} \times 2$  inches. The remainder of the outfit is a swivel, genuine shell and linen strop, wet brush and soap holder, genuine badger lather brush, box of shaving soap, box of Keenest Edge strop dressing to sharpen razor and one bottle of "3 in One" Oil. The 19 pieces described are contained in a sterling mounted morocco case, the outer dimensions of which are  $8\frac{1}{2} \times 3\frac{1}{4} \times 3\frac{3}{8}$  inches, and all articles are sold by the company to be of fine quality, suitable for the most critical trade. There is also a similar set, No. 2, containing a fine patented two-blade razor or two good single blade razors, the con-

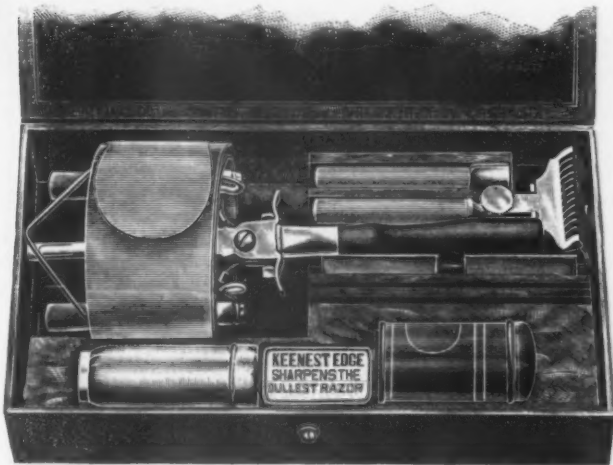


Fig. 3.—Simplicity Safety Razor Outfit No. 50.

tents being otherwise the same as No. 1 set, in a case  $8\frac{1}{4} \times 3 \times 3$  inches. Fig. 3 illustrates a similar set, No. 50 Simplicity, safety razor outfit with 2 to 7 blades, patented stropping machine, strop, lather brush, soap and large beveled easel mirror under tray  $5 \times 7$  inches. The Keenest Edge razor strop dressing mentioned is a new preparation in round corner decorated box,  $2 \times 1\frac{1}{4} \times \frac{3}{8}$  inches, for occasional application to razor strop and is also sold independently.

## PAINTS, OILS AND COLORS

## White Lead, Zinc, &amp;c.—

Lead, English white, in Oil.. 9% @ 9%	
Lead, American white, in Oil:	
Lots of 500 lb or over..... @ 6%	
Lots less than 500 lb..... @ 7%	
In Barrels..... @ 6	
Lead, White, in oil, 25 lb tin	
pails, add to keg price..... @ 1/4	
Lead, White, in oil, 12 1/2 lb tin	
pails, add to keg price..... @ 1	
Lead, White, in oil, 1 to 5 lb.	
assorted tins, add to keg price.. @ 1 1/4	
Lead, American, Terms: For lots 12	
tons and over 1/4% rebate; and 2% for	
cash if paid in 15 days from date of	
invoice; for lots of 500 lbs. and over	
2% for cash if paid in 15 days from	
date of invoice, for lots of less than	
500 lbs. net..... @ 6	
Lead, White, Dry in bbls..... @ 6	
Zinc, American, dry..... 1 1/4 @ 4%	
Zinc, French:	
Paris, Red Seal, dry..... 3%	
Paris, Green Seal, dry..... 3%	
Antwerp, Red Seal, dry..... 7%	
Antwerp, Green Seal, dry..... 8%	
Zinc, V. M. French, in Poppy Oil:	
Green Seal:	
Lots of 1 ton and over..... 11 1/4 @ 12 1/4	
Lots of less than 1 ton..... 12 @ 12 1/2	
Zinc, V. M. French, in Poppy Oil:	
Red Seal:	
Lots of 1 ton and over..... 10 1/4 @ 11	
Lots of less than 1 ton..... 10 1/2 @ 11 1/4	
Discounts.—French Zinc.—Discounts	
to buyers of 10 bbl, lots of one or mixed	
grades, 1%; 25 bbls, 2%; 50 bbls, 4%.	

## Dry Colors—

Black, Carbon..... 5 @ 10	
Black, Drop, Amer..... 4 @ 8	
Black, Drop, Eng..... 5 @ 15	
Black, Ivory..... 16 @ 20	
Lamp, Com..... 4 1/2 @ 6	
Blue, Celestial..... 4 @ 6	
Blue, Chinese..... 2 @ 32	
Blue, Prussian..... 1 1/4 @ 30	
Blue, Ultramarine..... 1 1/2 @ 15	
Brown, Spanish..... 1 1/2 @ 1	
Carmine, No. 49..... 3.50 @ 3.60	
Green, Chrome, ordinary..... 3 1/2 @ 6	

Green, Chrome, pure..... 17 @ 20	
Lead, Red, pure, 1/2 bbls. and kegs:	
Lots 500 lb or over..... @ 6 1/2	
Lots less than 500 lb..... @ 7	
Litharge, American, bbls..... 6 @ 6 1/2	
Ocher, American..... @ ton \$8.50 @ 16.00	
Ocher, American Golden..... 2 1/2 @ 3 1/2	
Ocher, French..... 1 1/4 @ 2 1/2	
Ocher, Foreign Golden..... 3 @ 4	
Orange Mineral, English..... 8 @ 10	
Orange Mineral, French..... 10 1/2 @ 12 1/4	
Orange Mineral, German..... 8 @ 10	
Orange Mineral, American..... 8 @ 8 1/4	
Red, Indian, English..... 4 1/2 @ 8 1/2	
Red, Indian, American..... 3 @ 3 1/4	
Red, Turkey, English..... 4 @ 10	
Red, Tuscan, English..... 7 @ 10	
Red, Venetian, Amer..... @ 100 lb \$0.50 @ 1.25	
Red Venetian, English..... 100 lb \$1.15 @ 1.75	
Sienna, Italian, Burnt and	
Powdered..... 3 @ 9 1/2	
Sienna, Ital., Raw, Powd..... 3 @ 6 1/2	
Sienna, American, Burnt and	
Powdered..... 1 1/4 @ 2	
Talc, French..... @ ton \$15.00 @ 30.00	
Terra Alba, French..... @ 100 lb 90 @ 1.00	
Terra Alba, English..... @ 100 lb 90 @ 1.00	
Terra Alba, American..... @ 100	
No. 1..... 60 @ 70	
Terra Alba, American..... 100	
No. 2..... 45 @ 60	
Umber, T'key, Bnt. & Pow..... 2 1/4 @ 3 1/4	
Umber, Turkey, Raw & Pow..... 2 1/4 @ 3 1/4	
Umber, Burnt, Amer..... 1 1/2 @ 2	
Umber, Raw, Amer..... 1 1/2 @ 2	
Yellow, Chrome..... 1 1/2 @ 2	
Vermilion, American Lead..... 10 @ 25	
Vermilion, Quicksilver, bulk..... @ 65	
Vermilion, Quicksilver, bags..... @ 65	
Vermilion, English, Import..... 75 @ 80	
Vermilion, Chinese..... \$0.90 @ 1.00	

## Colors in Oil—

Black, Lampblack..... 12 @ 14	
Blue, Chinese..... 36 @ 46	
Blue, Prussian..... 32 @ 39	
Blue, Ultramarine..... 13 @ 16	
Brown, Vandyke..... 11 @ 14	
Green, Chrome..... 10 @ 15	
Green, Paris..... 24 @ 24	

Sienna, Raw..... 12 @ 15	
Sienna, Burnt..... 12 @ 15	
Umber, Raw..... 11 @ 14	
Umber, Burnt..... 11 @ 14	

## Miscellaneous—

Barytes, White, Foreign..... @ ton \$17.50 @ 19.00	
Barytes, Amer. floated..... @ ton 18.00 @ 19.00	
Barytes, Crude, No. 1..... @ ton 10.00 @ 11.00	
Chalk, in bulk..... @ ton 3.00 @ 3.25	
Chalk, in bbls..... @ 100 lb 3 @ 3.5	
China Clay, English..... @ ton 11.00 @ 17.00	
Cobalt, Oxide..... @ 100 lb 2.50 @ 2.60	
Whiting, Common..... @ 100 lb .43 @ .48	
Whiting, Gilders..... @ 100 lb .50 @ .55	
Whiting, Ex. Gilders..... @ 100 lb .55 @ .60	

## Putty, Commercial—

In bladders..... \$1.70 @ 1.75	
In bbls. or tubes..... 1.10 @ 1.15	
In 1 lb to 5 lb cans..... 2.60 @ 2.90	
In 12 1/2 to 50 lb cans..... 1.40 @ 1.55	

## Spirits Turpentine—

In Oil bbls..... 63 1/2 @ 64	
In machine bbls..... 64 @ 64 1/2	

## Glue—

Cabinet..... 11 @ 15	
Common Bone..... 7 @ 9	
Extra White..... 18 @ 24	
Foot Stock, White..... 11 @ 14	
Foot Stock, Brown..... 12 @ 18	
German Hide..... 12 @ 18	
French..... 10 @ 14	
Irish..... 13 @ 16	
Low Grade..... 9 @ 12	
Medium White..... 14 @ 17	

## Gum Shellac—

Bleached Commercial..... 35 @ 37	
Bone Dried..... 45 @ 47	
Button..... 26 @ 45	
Diamond I..... 65 @ 65	
Fine Orange..... 45 @ 47	
A. C. Garnet..... 39 @ 40	
D. C. Garnet..... 65 @ 65	
Octagon B..... 47 @ 48	
T. N..... 41 @ 43	
V. S. O..... 38 @ 40	

## Animal, Fish and Vegetable Oils—

Linseed, City, raw..... 54 @ 55	
Linseed, City, boiled..... 56 @ 57	
Linseed, State and West'n, raw..... 52 @ 53	
Linseed, raw Calcutta seed..... 62 @ 63	
Lard, Extra Prime, Winter..... 47 @ 48	
Lard, Extra No. 1..... 47 @ 48	
Lard, No. 1..... 35 @ 39	
Cotton-seed, Crude, f.o.b. mills..... @	
Cotton-seed, Summer Yellow, Prime..... 30 1/2 @ 31	
Cotton-seed, Summer Yellow, off grades..... @	
Sperm, Crude..... 35 @ 36	
Sperm, Natural Spring..... 34 @ 35	
Sperm, Bleached Spring..... 60 @ 63	
Sperm, Natural Winter..... 60 @ 63	
Sperm, Bleached Winter..... 63 @ 65	
Tallow, Prime..... 51 @ 63	
Whale, Crude..... @	
Whale, Natural Winter..... 42 @ 44	
Whale, Bleached Winter..... 44 @ 46	
Menhaden, Brown, Strained..... 28 @ 29	
Menhaden, Light, Strained..... 29 @ 30	
Menhaden, Bleached, Winter..... 31 @ 32	
Menhaden, Ex-Bld. Winter..... 32 @ 33	
Menhaden, Southern..... 16 1/2 @ 17	
Cocanut, Ceylon..... @ lb 6 1/2 @ 6 1/2	
Cocanut, Cochiti..... @ lb 7 1/4 @ 7 1/4	
Cod, Domestic, Prime..... 34 @ 36	
Cod, Newfoundland..... 30 @ 31	
Red, Elaine..... 32 @ 33	
Red, Saponified..... @ lb 4 1/2 @ 4 1/2	
Olive, Italian, bbls..... 54 @ 57	
Neatsfoot, prime..... 49 @ 50	
Palm, Logos..... @ lb 5 1/2 @ 5 1/2	

## Mineral Oils—

Black, 29 gravity, 25 @ 30 cold test..... 10 1/2 @ 11 1/4	
Black, 29 gravity, 15 cold test..... 11 1/2 @ 12 1/4	
Black, Summer..... 10 1/4 @ 11 1/4	
Cylinder, light filtered..... 18 @ 19	
Cylinder, dark filtered..... 16 @ 17	
Paraffine, 903-907 gravity..... 12 1/2 @ 13	
Paraffine, 883 gravity..... 11 1/2 @ 12	
Paraffine, 863 gravity..... 9 1/2 @ 9 1/2	
Paraffine, Red..... 11 1/2 @ 13	
In small lots 1/4 @ advance.	

# Current Hardware Prices.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

**Range of Prices.**—A range of prices is indicated by means of the symbol @. Thus 33 1/2 @ 33 1/2 & 10% signifies

that the price of the goods in question ranges from 33 1/2 per cent. discount to 33 1/2 and 10 per cent. discount.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1905, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters, Blind—

Domestic,  $\frac{1}{2}$  doz. \$3.00.....33 1/2%  
North's.....10%  
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Ives' Patent.....35%  
Taplin's Perfection.....35%

**Ammunition**—See Caps, Cartridges, Shells, &c.

## Anvils—American—

Eagle Anvils..... $\frac{1}{2}$  lb. 6% @ 7%  
Hay-Budden, Wrought.....90%  
Horsehoe brand, Wrought.....90%  
Trenton..... $\frac{1}{2}$  lb. 9% @ 9%

## Imported—

Peter Wright & Sons..... $\frac{1}{2}$  lb. 10% @

## Anvil, Vise and Drill—

Millers Falls Co., \$18.00.....15 & 10%

## Apple Parers—See Parers, Apple, &c.

## Aprons, Blacksmiths'—

Livingston Nail Co.....33 1/2%

## Augers and Bits—

Com. Double Spur.....70 & 10 @ 75%  
Jennings' Patn. reg. finish.....50 & 10%  
Black Lip or Blued.....60 & 10%  
Boring Mach. Augers.....70 & 10%  
Car Bits, 12-in. twist.....50 & 10%  
Ford's Auger and Car Bits.....40 & 5%  
Forster Pat. Auger Bits.....25%  
C. E. Jennings & Co.:  
No. 10 ext. lip, R. Jennings' list.....25%  
No. 30, R. Jennings' list.....40 & 10%  
Russell Jennings' Pattern.....25 & 10 & 2%  
L. Hommedieu Car Bits.....15%  
Mayhew's Countersink Bits.....45%  
Millers Falls.....50 & 10 & 7%  
Ohio Tool Co.'s Bailey Auger and Car Bits.....40 & 10%  
Pugh's Black.....20%  
Pugh's Jennings' Pattern.....25%  
Snell's Auger Bits.....60%  
Snell's Bell Hangers' Bits.....60%  
Snell's Car Bits, 12-in. twist.....60 & 10%  
Wright's Jennings' Bits.....60%

## Bit Stock Drills—

See Drills, Twist.

## Expansive Bits—

Clark's small, \$18; large, \$26.....50 & 10%  
Clark's Pattern, No. 1,  $\frac{1}{2}$  doz. \$26.....  
No. 2, \$18.....45%  
Ford's, Clark's Pattern.....60 & 5%  
C. E. Jennings & Co., Steer's Pat.....25%  
Swan's.....60%

## Gimlet Bits—

Common Dble. Cut..... $\frac{1}{2}$  doz. \$3.00 @ 3.25  
German Pattern, Nos. 1 to 10,  
\$1.60; 11 to 13, \$1.75

## Hollow Augers—

Bonney Pat., per doz. \$9.00 @ 10.00  
Ames.....25 & 10%  
Universal.....20%  
Wood's Universal.....25%

## Ship Augers and Bits—

Ford's.....33 1/2 @ 35%  
C. E. Jennings & Co.:  
L. Hommedieu's.....15%  
Watrous'.....35 & 10%  
Ohio Tool Co.'s.....40%  
Snell's.....40%

## Awl Hafts—See Hafts, Awl.

## Awls—

Brad Awls:  
Handled.....gro. \$2.75 @ 3.00  
Unhlded, Shldered.....gro. 63 @ 66¢  
Unhlded, Patent.....gro. 66 @ 70¢

## Peg Awls—

Unhlded, Patent.....gro. 31 @ 34¢  
Unhlded, Shldered.....gro. 65 @ 70¢

## Scratch Awls—

Handled, Com.....gro. \$3.50 @ 4.00  
Handled, Socket.....gro. \$11.50 @ 12.00  
Hurwood.....40%

## Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

Single Bit, base weights:  
First Quality.....\$6.75  
Second Quality.....\$6.25

## Double Bit, base weights:

First Quality.....\$8.75  
Second Quality.....\$8.25

## Axle Grease—

See Grease, Axle

## Axles—

Concord, Loose Collar..... $\frac{1}{4}$  @ 1 1/2¢  
Concord, Solid Collar..... $\frac{1}{4}$  @ 5 1/2¢

No. 1 Common, Loose.....3 1/4 @ 3 1/2¢  
No. 1 1/2 Com., New Style.....4 1/4 @ 4 1/2¢  
No. 2 Solid Collar.....4 1/4 @ 4 1/2¢

Half Patent:  
Nos. 7, 8, 11 and 12.....75 @ 75 & 5%  
Nos. 13 to 14.....70 & 10 @ 75 & 5%  
Nos. 15 to 18.....75 & 10 @ 75 & 10 & 5%  
Nos. 19 to 22.....75 & 10 @ 75 & 10 & 5%

## Boxes, Axle—

Common and Concord, not turned.....lb. 1 1/2 @ 5¢

Common and Concord, turned.....lb. 5 1/2 @ 6¢

Half Patent.....lb. 8 1/2 @ 9¢

## Bait—

Hendryx:  
A Bait.....30%  
B Bait.....25%  
Competitor Bait.....20 & 5%

## Balances—

Caldwell new list.....50 & 10%  
Pullman.....50 & 10 @ 60%

## Sash—

Spring.....60 @ 60 & 5%

Chatillon's:  
Light Spg. Balances.....40 & 10%  
Straight Balances.....40%  
Circular Balances.....50%  
Large Dial.....50%

## Barb Wire—See Wire, Barb.

## Bars—

Crow.....10 to 40 lb. per lb. 2 1/2 @ 3 1/4¢

## Towel—

No. 10 Ideal, Nickel Plate..... $\frac{1}{2}$  gro. \$8.50

## Beams, Scale—

Scale Beams.....40 & 10 @ 50%  
Chattillon's No. 1.....50 & 5%  
Chattillon's No. 2.....40%

## Beaters, Carpet—

Holt-Lyon Co.:  
No. 12 Wire Coppered  $\frac{1}{2}$  doz. \$0.85;  
Tinned.....\$1.00  
No. 11 Wire Coppered  $\frac{1}{2}$  doz. \$1.10;  
Tinned.....\$1.20  
No. 10 Wire Galvanized..... $\frac{1}{2}$  doz. \$1.75  
Western W. G. Co.:  
No. 1 Electric..... $\frac{1}{2}$  gro. \$7.80  
No. 2 Buffalo..... $\frac{1}{2}$  gro. \$9.00  
No. 3 Perfection Dust..... $\frac{1}{2}$  gro. \$9.00

## Egg—

Holt-Lyon Co.:  
Holt, No. A, Japanned..... $\frac{1}{2}$  doz. \$1.20  
Holt, No. 1, Tinned..... $\frac{1}{2}$  doz. \$1.50  
Holt, No. B, Japanned..... $\frac{1}{2}$  doz. \$2.00  
Holt, No. 2, Tinned..... $\frac{1}{2}$  doz. \$2.25  
Holt, No. 3, Japanned..... $\frac{1}{2}$  doz. \$1.25  
Lyon, No. 3, Japanned..... $\frac{1}{2}$  doz. \$1.50  
Taplin Mfg. Co.:  
No. 60 Improved Dover.....\$6.00  
No. 75 Improved Dover.....\$6.50  
No. 100 Improved Dover.....\$7.00  
No. 102 Improved Dover, Tin'd.....\$8.50  
No. 150 Improved Dover, Hotel.....\$15.00  
No. 152 Imp'd Dover, Hotel, T'd.....\$17.00  
No. 200 Imp'd Dover Tumbler.....\$8.50  
No. 202 Imp'd Dover Tumbler, T'd.....\$9.50  
No. 300 Imp'd Dover Mammoth.....doz. \$25.00  
Western, W. G. Co., Buffalo.....\$7.00  
Wouder (S. S. & Co.),  $\frac{1}{2}$  gro. net, \$6.00

## Bellows—

Blacksmith, Standard List.....60 & 10 @ 70 & 10%

## Hand—

Inch.....6 7 8 9 10  
Doz.....\$4.50 5.00 5.50 6.00 6.50

## Molders—

Inch.....9 10 11 12 14  
Doz.....\$8.00 9.00 10.50 12.50 14.50

## Bells—

Cow—  
Ordinary goods.....75 & 5 @ 75 & 10 & 5%  
High grade.....70 & 10 @ 70 & 10 & 5%  
Jersey.....75 & 10%  
Texas Star.....50%

## Door—

Abbe's Gong.....45%  
Burton Gong.....50%  
Home, R. & E. Mfg. Co.'s.....55 & 10%  
Lever and Pull, Sargent's.....60 & 10 & 10%  
Trip Gong.....50 & 10 @ 50 & 10 & 5%  
Yankee Gong.....55%

## Hand—

Hand Bells, Polished, Brass.....60 & 5 @ 60 & 10 & 5%

## White Metal—

Nickel Plated.....50 & 10 @ 50 & 10 & 5%  
Scales.....60 @ 60 & 7 1/2¢  
Come's Globe Hand Bells.....33 1/2 @ 35%  
Silver Chime.....35 @ 35%

## Miscellaneous—

Farm Bells.....lb. 2 1/2¢  
Steel Alloy Church and School  
Gongs.....50 & 10 @ 60 & 5%  
American Tube & Stamping Co.  
Table Call Bells.....50 @ 50 & 10%

## Belt—

Extra Hvy. Short Lap.....60 @ 60 & 5%  
Regular Short Lap.....65 & 10 @ 70%  
Standard.....70 & 5 @ 70 & 10%  
Light Standard.....70 & 10 @ 75%  
Cut Leather Lacing.....60 & 10%  
Leather Lacing Sides, per sq. ft. 17 1/2 @ 18¢

## Rubber—

Agricultural (Low Grade).....75 @ 75 & 5%  
Common Standard.....70 @ 70 & 10%  
Standard.....65 & 70%  
Extra.....60 & 5 @ 60 & 10%  
High Grade.....50 & 5 @ 50 & 10%

## Bench Stops—

See Stops, Bench

## Benders and Upsetters, Tire—

Detroit Perfected Tire Bender.....40%  
Green River Tire Benders and Upsetters.....20%  
Detroit Stoddard's Lightning Tire Upsetters, No. 1, \$4.25; No. 2, \$7.25;  
No. 3, \$10.50; No. 4, \$16.25; No. 5, \$20.50.

## Bicycle Goods—

John S. Lang's Son's 1902 list:  
Chain.....50%  
Parts.....50%  
Spokes.....50%  
Tubes.....60%

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

## Blocks—

Common Wooden.....70 & 10 @ 75 & 5%  
Hartz St. Tackle Blocks.....50 & 5%  
Hollow Steel Blocks, with Ford's Patent Sheaves.....50 & 10%  
Lane's Patent Automatic Lock and Junior.....30%  
Stowell's Novelty, Mal. Iron.....50 & 10%  
Stowell's Self Loading.....60%  
See also Machines, Hoisting.

## Boards, Stove—

Zinc, Crystal, &c.....30 & 10 @ 40 & 10%

## Boards, Wash—

See Washboards.

## Bobs, Plumb—

Keuffel & Esser Co.....38 1/2 @ 35%

## Boils—

Carriage, Machine, &c.—

Common Carriage (cut thread):  
% x 6 and Smaller.....75 & 10%  
Larger and Longer.....65 & 10 @ 65 & 10%

Phila. Eagle \$3.00 list May 21, '99

Bolt Ends, list Feb. 14, '95.....80%

Machine, % x 4 and smaller.....70 & 2 1/2 @ 70 & 10%

Machine, larger and longer.....75 & 2 1/2 @ 75 & 10%

Machine, larger and longer.....70 & 2 1/2 @ 70 & 10%

## Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knob:  
Inch.....3 4 5 6 8  
Per doz. \$0.30 35 45 55 75

Cast Iron Spring Foot, Jap'd:  
Inch.....6 8 10  
Per doz. \$1.15 1.40 2.00

Cast Iron Chain, Flat, Japanned:  
Inch.....6 8 10  
Per doz. \$0.95 1.25 1.55

Cast Iron Shutter, Japanned, Brass Knobs:  
Inch.....6 8 10  
Per doz. \$0.80 90 1.20

Wrt Barrel Jap'd.....80 @ 80 & 10%  
Wrt "Bronzed".....50 @ 50 & 10%  
Wrt Spring.....70 & 10 @ 70 & 10%

Wrt Shutter.....50 & 5 @ 50 & 10 & 5%  
Wrt Square Neck.....75 @ 75 & 10%  
Wrt Square, 6 1/2 @ 10 @ 6 1/2 @ 10 & 10%

Ives' Patent Door.....60%

## Plow and Stove—

Plow.....65 & 10 @ 65 & 10 & 10%

Stove.....82 1/2 @ 10 @ 82 1/2 @ 10 & 5%

## Tire—

Common.....80%  
Norway Iron.....80%  
American Screw Company:  
Norway Phila., list Oct. 16, '84.....80%  
Eagle Phila., list Oct. 16, '84.....82 1/2%  
Bay State, list Dec. 28, '99.....80%  
Franklin Moore Co.:  
Norway Phila., list Oct. 16, '84.....80%  
Eagle Phila., list Oct. 16, '84.....82 1/2%  
Eclipse, list Dec. 28, '99.....80%  
Mount Carmel Co.:  
Norway Phila., list Oct. 16, '84.....80%  
Eagle Phila., list Oct. 16, '84.....82 1/2%  
Mount Carmel, list Dec. 28, '99.....80%  
Russell, Burdall & Ward Bit & Nut Co.:  
Empire, list Dec. 28, '99.....80%  
Norway Phila., list Oct. 16, '84.....80%  
Upon Nut Co.:  
Tire Bolts.....72 1/2%

## Borers, Tap—

Borers Tap, Ring, with Handle:  
Inch.....1 1/4 1 1/2 1 3/4 2  
Per doz. \$4.80 5.60 6.40 8.00

Inch.....2 1/2 2 3/4 3  
Per doz. \$5.65 6.45 11.50

Enterprise Mfg. Co., No. 1, \$1.25; No. 2, \$1.65; No. 3, \$2.50 each.....25%

## Boxes, Mitre—

C. E. Jennings & Co.....30%  
Langdon.....15 & 10%  
Perfection.....40%  
Seavey.....33 1/2%  
Stanley R. & L. Co.:  
Nos. 240 to 460.....30%  
Nos. 50 and 60.....35%

## Braces—

Common Ball American, \$1.25 @ 1.30  
Barber's.....50 & 10 @ 60 & 10%  
Fray's Genuine Spoford's.....60%  
Fray's No. 70 to 120, 81 to 123, 207 to 411.....60%  
C. E. Jennings & Co.....50 & 5%  
Mayhew's Ratchet.....60%  
Mayhew's Quick Action Hay Pat.....50%  
Millers Falls Drill Braces.....25 & 10%  
P. S. & W. Co., Peck's Pat. 63 @ 60 & 5%  
Stanley R. & L. Co.:  
Stanley.....35%  
Victor.....45%

## Brackets—

Wrought Steel.....80 & 10 @ 80 & 10 & 5%  
Bradley's Wire Shelf.....80 & 10 @ 85%  
Griffin's Pressed Steel.....80 & 10 @ 85%  
Griffin's Folding Brackets.....70 & 10%  
Stowell's Cast Shelf.....75%  
Stowell's Sink.....50%  
Western, W. G. Co., Wire.....60 & 10%

## Bright Wire Goods—

See Wire and Wire Goods.

## Broilers—

Kilbourne Mfg. Co.....75 & 20%  
Western, W. G. Co.....80%  
Wire Goods Co.....70 @ 75 & 10%

## Buckets, Galvanized—

Price per dozen:  
Quart.....12 14  
Water, Regular.....1.40 1.70 1.90  
Water, Heavy.....3.40 3.70 3.80  
Fire, Rd. Bottom.....2.80 2.55 2.95  
Well.....2.55 2.87 3.15

## Bucks, Saw—

Hoosier..... $\frac{1}{2}$  gro. \$36.00

## Bull Rings—See Rings, Bull

## Butts—

Wrought, list Sept., '96.....30%  
Cast Brass, Tiebout's.....50%

## Cast Iron—

Fast Joint, Broad.....40 & 10 @ 50%  
Fast Joint, Narrow.....40 & 10 @ 50%  
Loose Joint.....70 & 10 @ 75%  
Loose Pin.....70 & 10 @ 75%  
Mayer's Hinges.....75 @ 70 & 5%  
Parliament Butts.....70 @ 70 & 5%

## Wrought Steel—

Table and Back Flaps.....75%  
Narrow and Broad.....75%  
Inside Blind.....75%  
Loose Pin.....75%  
Loose Pin, Jap'd.....70 & 10%  
Loose Pin, Ball and Steeple Tip.....85%  
Japanned Ball Tip Butts.....70 & 10%  
Bronzed, Wrt., Nar. and Inside Blind Butts.....55 & 10%

## Cages, Bird—

Hendryx, Brass:  
3000, 5000, 1100 series.....5%  
1200 series.....35 1/2%  
200, 300, 600 and 900 series.....40 & 10%

Hendryx Bronze: 700, 800 series.....40&10%  
Hendryx Bismaleed.....40&10%

### Calipers—See Compasses.

**Calks, Toe and Heel—**  
Blunt, 1 prong.....per lb. 1.45¢  
Sharp, 1 prong.....per lb. 1.45¢  
Gautier, Blunt.....per lb. 1.45¢  
Gautier, Sharp.....per lb. 1.45¢  
Perskins, Blunt Toe.....per lb. 1.45¢  
Perskins, Sharp Toe.....per lb. 1.45¢

### Can Openers—

See Openers, Can.

### Cans, Milk—

Illinois Pattern.....1.35 8 10 gal.  
New York Pattern.....1.50 2.20 2.45 each.  
Baltimore Pattern.....1.50 2.20 2.45 each.  
Dubuque.....1.35 1.60 1.75 each.

### Cans, Oil—

Buffalo Family Oil Cans:  
3 5 10 gal.  
\$18.00 60.00 120.00 gro., net.

### Caps, Percussion—

Eley's E. B. ....52¢55¢  
G. D. ....per M 34¢35¢  
F. L. ....per M 30¢42¢  
G. E. ....per M 38¢50¢  
Musket ....per M 62¢63¢

### Primers—

Berdan Primers, 2¢ per M.....20%  
B. L. Caps (Sturtevant Shells)  
2¢ per M.....20%  
All other primers per M \$1.52¢1.60

### Cartridges—

Blank Cartridges:  
3 C. F., \$5.50.....10¢5¢  
38 C. F., \$7.00.....10¢5¢  
22 cal. Rim, \$1.50.....10¢5¢  
32 cal. Rim, \$2.75.....10¢5¢  
B. B. Caps, Con. Ball, Sec'd \$1.90  
B. B. Caps, Round Ball.....\$1.49  
Central Fire.....25¢  
Target and Sporting Rifle.....15¢5¢  
Primer Shells and Bullets.....15¢10¢  
Rim Fire, Sporting.....50¢  
Rim Fire, Military.....15¢5¢

### Castors—

Bed .....70¢70¢10%  
Plate .....60¢10¢60¢10¢5¢  
Philadelphia .....75¢75¢10%  
Acme, Ball Bearing.....70¢10¢  
Boss Anti-Friction.....70¢10¢  
Gem (Roller Bearing).....80¢  
Martin's Patent (Phoenix).....45¢  
Standard Ball Bearing.....45¢  
Tucker's Patent low list.....50¢  
Yale (Double Wheel) low list.....50¢

### Cattle Leaders—

See Leaders, Cattle.

### Chain, Coil—

American Coil, Straight Link:  
3-16 1/4 5-16 3/4 7-16 1/2 9-16  
\$7.50 5.35 3.40 3.70 3.55 3.45 3.40  
% 1/4 1 to 1 1/4 inch.  
\$3.35 3.30 3.25 3.25 per 100 lb.  
German Coil.....60¢10¢60¢10%  
Halters and Ties—  
Halter Chains.....60¢10¢60¢10%  
German Pattern Halter Chains,  
list July 24, '97.....60¢10¢60¢10%  
Cov. Ties.....60¢10¢60¢10%

### Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.  
6-3, 6-3, 6-3, with ring \$23.50  
6-3, 6-2, 6-2, with ring \$21.50  
6-3, 6-2, 6-2, with ring \$23.50  
6-3, 6-2, 6-2, with ring \$23.50  
NOTE—Add 2¢ per pair for Hooks.  
Twist Traces 2¢ per pair higher than  
Straight Link.

### Trace, Wagon and Fancy

Chains.....60¢5¢60¢10¢5¢

### Miscellaneous—

Jack Chain, list July 10, '93:  
Iron .....60¢10¢60¢10%  
Brass .....60¢10¢60¢10%  
Safety Chain.....75¢75¢10%  
Gal. Pump Chain.....lb. 5¢5¢  
Covert Mfg. Co.:  
Breast.....35¢5¢  
Halter.....35¢5¢  
Heel.....35¢5¢  
Rein.....35¢5¢  
Stallion.....35¢5¢

### Covert Sad. Works:

Breast.....70¢  
Halter.....70¢  
Hold Back.....70¢  
Rein.....70¢

### Oneida Community:

Am. Coil and Halters.....40¢10¢5¢  
Am. Cow Ties.....45¢50¢  
Am. Dog Leads and Kennel Chains.....40¢40¢5¢

Niagara Coil and Halters.....45¢50¢5¢  
Niagara Cow Ties.....45¢50¢5¢  
Niagara Dog Leads and Kennel Chains.....45¢40¢5¢

### Wire Goods Co.:

Dog Chain.....70¢10%  
Universal Dbl.-Jointed Chain.....50¢

### Chain and Ribbon, Sash—

Oneida Community:  
Copper Chain.....60¢5¢  
Steel Chain.....60¢

### Pullman:

Bronze Chain.....60¢  
Steel Chain.....60¢10%  
Sash Chain Attachments, per set 3¢  
Aluminum Sash Ribbon, per 100  
ft. ....\$1.25\$3.00

Sash Ribbon Attachments, per set 3¢

### Chalk—(From Jobbers.)

Carpenters' Blue.....gro. 35¢38¢  
Carpenters' Red.....gro. 30¢33¢  
Carpenters' White.....gro. 25¢28¢

### See also Crayons.

### Checks, Door—

Rardley's.....45¢  
Kilpine.....60¢10%  
Pullman, per doz.....\$54.00  
Russwin.....40%

### Chests, Tool—

American Tool Chest Co.:  
Boy's Chests, with Tools.....55¢  
Youth's Chests, with Tools.....40¢  
Gentlemen's Chests, with Tools.....30¢  
Farmers' Carpenters', etc., Chests,  
with Tools.....20¢  
Machinists' and Pipe Fitters'  
Chests, Empty.....50¢  
Tool Cabinets.....50¢  
C. E. Jennings & Co.'s Machinists'  
Tool Chests.....53¢40%

### Chisels—

Socket Framing and Firmer  
Standard List.....75¢75¢10%  
Buck Bros.....30¢  
Charles Buck.....30¢  
C. E. Jennings & Co. Socket Firmer  
No. 10.....60¢  
C. E. Jennings & Co. Socket Fram-  
ing No. 15.....60¢  
Ohio Tool Co.'s.....70¢  
Swan's.....75¢  
L. & I. J. White.....30¢30¢5¢

### Tanged

Tanged Firmer \$3 1-3 @ \$3 1-3 10%  
Buck Bros.....30¢  
Charles Buck.....30¢  
C. E. Jennings & Co. Nos. 191, 181, 25  
L. & I. J. White, Tanged.....25¢5¢

### Cold—

Cold Chisels, good quality.....13¢15¢  
Cold Chisels, fair quality.....11¢12¢  
Cold Chisels, ordinary.....9¢10¢

### Chucks—

Beach Pat., each \$3.00.....35¢5¢  
Empire.....25¢  
Blacksmith's.....25¢  
Jacobs' Drill Chucks.....30¢  
Pratt's Positive Drive.....25¢  
Skinner Patent Chucks:  
Independent Lathe Chucks.....50¢  
Universal.....50¢  
Combination.....50¢  
Drill Chucks, New Model.....30¢  
Drill Chucks, Standard.....45¢  
Drill Chuck, Skinner Pat., all sizes.....30¢  
Drill Chucks, Positive Drive.....30¢  
Planer Chucks.....25¢  
Face Plate Jaws.....40¢  
Standard Tool Co.:  
Improved Drill Chuck.....45¢  
Union Mfg. Co.:  
Combination.....50¢  
Czar Drill.....35¢  
Combination Geared Scroll.....40¢  
Geared Scroll.....40¢  
Independent.....50¢  
Independent Steel.....45¢  
Union Drill.....45¢  
Universal.....50¢  
Independent Iron F. Plate Jaws.....40¢  
Independent Steel F. Plate Jaws.....40¢  
Westcott Patent Chucks:  
Lathe Chucks.....50¢  
Little Giant Auxiliary Drill.....50¢  
Little Giant Double Grip Drill.....50¢  
Little Giant Drill, Improved.....50¢  
Oneida Drill.....50¢  
Scroll Combination Lathe.....50¢

### Clamps—

Adjustable, Hammers.....20¢20¢5¢  
Cabinet, Sargent's.....50¢10¢  
Carriage Makers', F. S. & W.  
Co.....40¢10¢50¢  
Carriage Makers', Sargent's.....60¢  
Besly, Parallel.....33¢10¢  
Lineman's, Utica Drop Forge & Tool  
Co.....40¢  
Saw Clamps, see Vises, Saw Filers'  
Wood Workers, Hammers.....10¢10%

### Cleaners, Drain—

Iwan's Champion, Adjustable.....55¢  
Iwan's Champion, Stationary.....45¢

### Sidewalk—

Star Socket, All Steel.....\$4.05 net  
Star Shank, All Steel.....\$3.24 net  
W. & C. Shank, All Steel.....\$3.24 net  
7 1/2 in., \$3.00; 8 in., \$3.25.

### Cleavers, Butchers'—

Foster Bros.....30¢  
New Haven Edg. Tool Co.'s.....45¢  
Fayette R. Plumb.....33¢33¢10%  
L. & I. J. White.....30%

### Clippers—

Chicago Flexible Shaft Company:  
38 Chicago Horse.....\$2.75 15%  
1892 Chicago Horse.....\$10.75 15%  
20th Century Horse, each.....\$5.00 20%  
Lightning Belt.....\$15.00 15%  
Chicago Belt.....\$20.00 15%  
Stewart's Patent Sheep.....\$12.75 20%

### Clips, Axle—

Eagle, 5-16 and 3/4 in. ....75¢75¢10%  
Norway, 5-16 and 3/4 in. ....60¢10¢70%

### Cloth and Netting, Wire

—See Wire, &c.

### Cocks, Brass—

Hardware Hat:  
Compression, Plain Bbbs,  
Globe, Kerosene, Racking,  
&c., Cocks.....70¢10¢75%

### Coffee Mills—

See Mills, Coffee.

### Collars, Dog—

Nickel Chain, Walter B. Stevens &  
Son's list.....40%  
Leather, Walter B. Stevens & Son's  
list.....40%

### Combs, Curry—

Metal Stamping Co.....40%

### Mane and Tail—

Covert's Saddlery Works.....60¢10%

### Compasses, Dividers, &c.

Ordinary Goods.....75¢5¢175¢10%  
Bemis & Call Hdw. & Tool Co.:  
Dividers.....65¢  
Calipers, Double.....65¢  
Calipers, Inside or Outside.....65¢  
Calipers, Wing.....60¢  
Compasses.....50%

### Conductor Pipe—

L. C. L. to Dealers:  
Galvanized.

Territory. Nested, Not nested.

Eastern.....70¢15%  
Southern.....70¢24%  
So. Western.....60¢20%

### Copper. 14¢16 oz.

Eastern.....50¢10%  
Central.....50¢7 1/2¢  
Southern.....50¢5¢  
So. Western.....50¢2 1/2¢  
Terms, 60 days; 2% cash 10 days. Fac-  
tory shipments generally delivered.  
See also Eave Troughs.

### Coolers, Water—

Gal. each, 2 3 4 6 8  
Labrador.....\$1.20 \$1.50 \$1.80 \$2.10 \$2.70  
Gal.....3 4 6 8  
Iceland, ea. \$1.80 \$2.10 \$2.40 \$3.00  
Galvanized, ea. \$1.85 \$2.00 \$2.25 \$2.50 \$3.50  
Galvanized, Lined, side handles,  
Gal.....2 3 4 6 8  
Each.....\$1.95 \$2.15 \$2.40 \$3.30 \$4.15  
White Enamelled.....25¢  
Agate Lined.....25¢

### Coopers' Tools—

See Tools, Coopers'.

### Coppers' Soldering—

Soldering Coppers, 2 1/2 & 3.20 @ 21¢  
1 1/2 & 2.....22¢23¢

### Cord—Sash—

Braided, Drab.....lb. 35¢  
Braided, White, Com., Nos. 6  
to 12.....lb. 23¢24 1/2¢  
Cable Laid Italian.....lb. 10¢10 1/2¢  
lb., A, 18¢; B, 16¢  
Common India.....lb. 10¢10 1/2¢  
Cotton Sash Cord, Twisted.....17¢19¢  
Patent Russia.....lb. 6¢11¢  
Cable Laid Russia.....lb. 6¢15¢  
India Hemp, Braided.....lb. 6¢18¢  
India Hemp, Twisted.....lb. 12¢13¢  
Patent India, Twisted.....lb. 12¢13¢  
Annisson Cordage Co.: Braided Cotton,  
Old Glory, Nos. 7 to 12.....lb. 23¢  
Annisson, Nos. 8 to 12, 23¢; No. 7,  
23 1/2¢; No. 6, 24 1/2¢; Annis-  
son, Drab, Nos. 7 to 12, lb. 25¢;  
Annisson Mahogany, 27¢  
Pearl Braided, cotton, No. 6, 30 lb.  
24 1/2¢; No. 7, 23 1/2¢; Nos. 8 to 12, 23¢  
Eddystone Braided, Nos. 8, 9 and  
10, 25¢; 7, 25 1/2¢; 6, 25 1/2¢.  
Harmony Cable Laid Italian, Nos. 7  
to 10.....lb. 23¢  
Peerless:  
Cable Laid Italian.....16¢  
Cable Laid Russian.....14¢  
Cable Laid India.....12¢  
Braided India.....18¢  
Pullman:  
Wire Sash Cord.....10%  
Sash Cord Attachments, per doz. 10¢  
Samson, Nos. 8 to 12:  
Braided, Drab Cotton.....30 lb 40¢  
Braided, Italian Hemp.....30 lb 40¢  
Braided, Linen.....30 lb 55¢  
Braided, White Cotton or Spot.....30 lb 35¢  
Massachusetts, White.....30 lb 28¢  
Massachusetts, Drab.....30 lb 32¢  
Phoenix, White, Nos. 8 to 12, 24¢;  
No. 6, 25 1/2¢; No. 5, 25 1/2¢.

### Silver, Lake—

A quality, Drab.....40¢  
A quality, White.....35¢  
B quality, Drab.....35¢  
B quality, White.....30¢  
Italian Hemp.....40¢  
Linen.....57 1/2¢

### See also Chain and Ribbon.

### Wire, Picture—

List Oct., '00.....85¢10¢10¢85¢10¢10¢5¢  
Hendryx Standard Wire Picture Cord,  
85¢10¢5¢

### Cradles—

Grain.....40¢12 1/2%

### Crayons—

White Round Crayons, gr. 5 1/2 @ 6¢  
Cases, 100 gr., \$4.00, at factory.

D. M. Steward Mfg. Co.:  
Metal Workers' Crayons, gr. 25¢  
Soapstone Pencils, round, flat  
or square.....gr. \$1.50  
Rolling Mill Crayons.....gr. \$2.50  
Railroad Crayons (composition)  
gr. \$2.00 Case lots, 20%  
Zelnicke's Lumber:  
Red, Blue, Green.....30 gro. \$6.50  
Black.....30 gro. \$4.00  
See also Chalk.

### Crooks, Shepherds'—

Fort Madison, Heavy.....30 doz. \$7.00  
Fort Madison, Light.....30 doz. \$6.50

### Crow Bars—See Bars, Crow.

### Cultivators—

Victor Garden.....50%

### Cutlery, Table—

International Silver Company:  
No. 12 M'd in Knives, 1847, 30 doz. \$3.50  
Star, Eagle, Rogers & Hamilton  
and Anchor.....30 doz. \$3.00  
Wm. Rogers & Son.....30 doz. \$2.50

### Cutters—Glass—

H. H. Mayhew Co.....40%  
Red Devil.....50%  
Smith & Hemenway Co.....50%  
Woodward.....40%

### Meat and Food—

American.....30%  
Nos. 1 2 3 4 B 5  
Each.....\$5 \$7 \$10 \$25 \$50 \$60  
Enterprise.....25¢25¢1/2%  
No. 5 10 12 22 32  
Each.....\$2 \$3 \$2.75 \$4.50 \$6  
Dixon's.....30 doz. 40¢50%  
Nos. 1 2 3 4  
Ideal.....\$14.00 \$17.00 \$19.00 \$30.00  
Little Giant.....30 doz. 40¢50%  
No. 305 310 312 320 322  
Each.....\$35.00 \$48.00 \$44.00 \$72.00 \$68.00  
N. E. Food Containers.....25%  
New Triumph No. 605, 30 doz. \$24.00  
40¢50%  
Russwin Food, No. 1, 24.00; No. 2,  
\$27.00.....45¢10¢10%  
Woodruff's.....30 doz. 40¢50%  
Nos. 100 150  
Each.....\$15.00 \$18.00  
Enterprise Beef Shavers.....25¢30%

### Slaw and Kraut—

Henry Diston & Sons:  
Slaw, Corn Grater, &c.....40%

### Kraut Cutters, 21 x 7, 25 x 8, 30

x 9.....55%  
Kraut Cutters, 36 x 12, 40 x 12.....40%  
J. M. Mast Mfg. Co.:  
Slaw Cutters, 1 Knife.....30 doz. \$3.00  
Combined Slaw Cutter and Corn  
Grater.....30 doz. \$1.00  
Tucker & Dorsey Mfg. Co.:  
Kraut Cutters.....40%  
Slaw Cutters, 1 Knife.....gr. \$18¢20¢  
Slaw Cutters, 2 Knife.....gr. \$22¢24¢

### Tobacco—

All Iron, Cheap.....doz. \$4.25¢4.50  
Enterprise.....doz. 50¢30¢  
National, 30 doz., No. 1, 21¢; No. 2,  
\$18.....doz. 10¢  
Sargent's, 30 doz., No. 2.....doz. 60¢  
Sargent's, Nos. 12 and 21.....doz. 60¢10%

### Washer—

Appleton's, 30 doz., \$16.00.....50¢10¢10%

### Diggers, Post Hole, &c.—

Dalbey Post Hole Auger, per doz. \$9.00  
Iwan's Imp'vd Post Hole Auger.....40¢5¢  
Iwan's Vaughan Pattern Post Hole  
Augers.....30 doz. \$6.25  
Iwan's Perfection Post Hole Digger.....30 doz. \$8.25  
Iwan's Split Handle Post Hole Dig-  
gers.....30 doz. \$7.25  
Kohler's Universal.....30 doz. \$14.00  
Kohler's Little Giant.....30 doz. \$12.00  
Kohler's Hercules.....30 doz. \$10.00  
Kohler's Invincible.....30 doz. \$9.00  
Kohler's Rival.....30 doz. \$8.00  
Kohler's Pioneer.....30 doz. \$7.00  
Never-Break Post Hole Diggers.....30 doz. \$24.00  
Samson, 30 doz. \$34.00.....25%

### Dividers—See Compasses.

### Doors, Screen—

Phillips', style E, 3/4 in.....30 doz. \$10.00  
Phillips', style 07, 3/4 in.....30 doz. \$7.50  
Phillips', style x-y, 3/4 in.....30 doz. \$10.50

### Drawers, Money—

Tucker's Pat. Alarm Till No. 1, 30  
doz., \$18; No. 2, \$15; No. 3, \$12;  
No. 4, \$18.

### Drawing Knives—

See Knives, Drawing.

### Dressers, Emery Wheel—

Diamond Emery Wheel Dressers.....35%  
Diamond Wheel Dresser Cutters.....35%

### Drills and Drill Stocks—

Common—Blacksmiths' Drill,  
each.....\$1.50¢1.75

Breast, Millers Falls.....15¢10¢  
Breast, P. S. & W.....40¢  
Goodell Automatic Drills.....40¢10¢10%  
Johnson's Automatic Drills, Nos. 2  
and 3.....16¢  
Johnson's Drill Points.....16¢  
Millers Falls Automatic Drills.....33 1/2¢10%  
Ratchet, Curtis & Curtis.....40¢  
Ratchet, Parker's.....40¢  
Ratchet, Weston's.....40¢  
Ratchet, Weston's, Style H Im-  
proved.....40¢  
Ratchet, No. 012.....40¢  
Ratchet, Whitely's, P. S. & W.....40¢  
Whitely's Hand Drill, No. 1, \$10.00;  
Adjustable, No. 10, \$12.00.....33 1/2%

### Twist Drills—

Bit Stock.....60¢10¢10¢70%  
Taper and Straight Shank.....60¢10¢60¢10¢5¢

### Drivers, Screw—

Screw Driver Bits, per doz. 45¢46¢  
Balsey's Screw Holder and Driver.....30 doz. 2 1/2-in., \$6; 4-in., \$7.50; 6-in., \$9

Buck Bros.' Screw Driver Bits.....30  
Champion.....30  
Edson.....30  
Fray's Hol' H'dle Sets, No. 3.....\$12.50  
Gay's Double Action Ratchet.....35  
Goodell's Auto.....50¢10¢10¢50¢10¢10%  
Hurdwood.....40  
Mayhew's Black Handle.....40  
Mayhew's Monarch.....40  
Millers Falls, Nos. 29 and 21.....25¢10%  
Millers Falls, Nos. 11, 12, 41, 42.....15¢10%  
New England Specialty Co.....50¢10%  
Sargent & Co.'s:  
Nos. 1 and 60.....50¢10¢10%  
Nos. 59, 53 and 55.....60¢10%  
Nos. 29 and 40.....70¢10%  
Smith & Hemenway Co.....40¢5¢  
H. D. Smith & Co.'s Perfect H'dle.....40%  
Stanley R. & L. Co.'s:  
No. 61, Varn. Handles.....65%  
No. 86.....75%  
Victor.....75%  
Defiance.....70%  
Swan's:  
Nos. 7565 to 768.....50%  
No. 7541.....10¢10%

### Extractors, Lemon Juice

—See Squeezers, Lemon.

### Fasteners, Blind—

Zimmerman's ..... 50¢10%  
Walling's ..... 40¢10%  
Cord and Weight ..... 40%

### Faucets—

Cork Lined ..... 50¢50¢10%  
Metallic Key, Leather Lined ..... 60¢10¢70%  
Red Cedar ..... 40¢10¢50%  
Petroleum ..... 70¢10¢75%

B. & L. B. Co.'s ..... 60¢10%  
Metal Key ..... 60%  
Star ..... 60%  
West Lock ..... 50¢10%

John Sommer's Peerless Tin Key ..... 40%  
John Sommer's Boss Tin Key ..... 40%  
John Sommer's Victor M. Key ..... 50¢10%  
John Sommer's Duplex Metal Key ..... 60%  
John Sommer's Diamond Lock ..... 40%  
John Sommer's I. X. L. Cork Lined ..... 50%  
John Sommer's Reliable Cork Lined ..... 50¢10%

John Sommer's Chicago Cork Lined ..... 50%  
John Sommer's O. K. Cork Lined ..... 50%  
John Sommer's No Brand, Cedar ..... 50%  
John Sommer's Perfection, Cedar ..... 40%  
McKenna, Brass ..... 25%  
Burglar Proof, N. P. ..... 25%  
Improved, ¾ and 1 inch ..... 25%  
Self Measuring ..... 25%

Enterprise, ½ doz. \$36.00 ..... 40¢10%  
Lane's, ½ doz. \$36.00 ..... 40¢10%  
National Measuring, ½ doz. \$36.40/10%

### Felloe Plates—

See Plates, Felloe.

### Files— Domestic—

List revised Nov. 1, 1899.

Best Brands ..... 70¢10¢75¢5%  
Standard Brands ..... 75¢10¢75¢10%  
Lower Grade ..... 75¢10¢10¢80¢10%

### Imported—

Stubs' Tapers, Stubs' List, July 24, '97 ..... 33-1-3-10%

### Fixtures, Fire Door—

Richards Mfg. Co.:  
Universal, No. 103 ..... \$3.75  
Special, No. 104 ..... \$3.75  
Fusible Links, No. 96 ..... 50%  
Expansion Bolts, No. 107 ..... 60¢10%

### Grindstone—

Net Prices: 15 17 19 21 24  
Per doz. \$2.15 2.25 2.35 2.75 4.50  
P. S. & W. Co. .... 30¢10¢40%  
Reading Hardware Co. .... 70%  
Sargent's ..... 70%  
Stowell's Giant Grindstone Hanger ..... 40%  
Stowell's Grindstone Fixtures, Extra Heavy ..... 30¢10¢10%  
Stowell's Grindstone Fixtures, Light ..... 60¢10%

### Fodder Squeezers—

See Compressors.

### Forks—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ey Potato ..... 60¢10%  
Victor, Hay ..... 60¢10%  
Victor, Manure ..... 60%  
Victor, Header ..... 60%  
Champion, Hay ..... 60%  
Champion, Header ..... 60%  
Champion, Manure ..... 60¢10%  
Columbia, Hay ..... 60¢10%  
Columbia, Header ..... 60%  
Columbia, Manure ..... 70%  
Columbia, Spading ..... 70¢12%  
Hawkeye Wood Barley ..... 40%  
W. & C. Potato Digger ..... 60¢10%  
Acme Hay ..... 60¢10%  
Acme Manure, 4 Hds. ..... 60¢10%  
Dakota Header ..... 60¢10%  
Jackson Steel Barley ..... 60¢10%  
Kansas Header ..... 60%  
W. & C. Favorite Wood Barley ..... 40%  
Plated.—See Spoons.

### Frames— Saw—

White, 8'x7 Bar, per doz. 75¢80¢  
Red, 8'x7 Bar, per doz. \$1.00¢1.25  
Red, Dbl. Brace, per doz. \$1.40¢1.50

### Freezers, Ice Cream—

Qt. .... 1 2 3 4 6  
Each ..... \$1.30 1.60 1.90 2.20 2.50

### Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

### Fry Pans— See Pans, Fry.

### Fuse—

Per 1000 Feet.  
Hemp ..... \$2.75  
Cotton ..... 3.20  
Waterproof Spl. Taped. .... 3.65  
Waterproof Dbl. Taped. .... 4.10  
Waterproof Tpl. Taped. .... 4.15

### Gates, Molasses and Oil—

Stebbins' Pattern .80¢10¢80¢10¢5%  
Gauges—

Marking, Mortise, etc. .... 50¢10¢50¢10¢10%  
Chapin-Stephens Co.:  
Marking, Mortise, etc. 50¢10¢50¢10¢10%  
Scholl's Patent ..... 50¢10¢50¢10¢10%  
Door Hangers ..... 50¢50¢10%  
Stanley R. & L. Co.'s Butt and Rabbit Gauge ..... 35%  
Marking and Mortise ..... 60%  
Wire, Brown & Sharpe's ..... 25%  
Wire, Morse's ..... 25%  
Wire, P. S. & W. Co. .... 35%

### Gimlets— Single Cut—

Numbered assortments, per gro.  
Nail, Metal, No. 1, \$2.00; 2, \$2.30  
Spike, Metal, No. 1, \$4.00; 2, \$4.30  
Nail, Wood Handled, No. 1, \$2.30; 2, \$2.60  
Spike, Wood Handled, No. 1, \$4.30; 2, \$4.60

### Glass, American Window

See Trade Report.

### Glasses, Level—

Chapin-Stephens Co. .... 60¢60¢10¢10%

### Glue, Liquid Fish—

Bottles or Cans, with Brush ..... 25¢50%

Cans (½ pts., pts., qts., ½ gal., gal.) ..... 25¢48%

International Glue Co. (Martin's) ..... 40%

### Grease, Axle—

Common Grade ..... gro. \$4.50¢5.50

Dixon's Everlasting, 10-lb pails, ea. 85¢  
Dixon's Everlasting, in boxes, 2 lb. \$2.00  
1 lb. \$1.20; 2 lb. \$2.00

Helmet Hard Oil ..... 25%

### Grips, Nipple—

Perfect Nipple Grips ..... 40¢10¢2%

### Griddles, Soapstone—

Pike Mfg. Co. .... 33%¢33%¢10%

### Grindstones—

Bicycle Emery Grinder ..... \$6.50  
Bicycle Grindstones, each ..... \$2.50¢3.00

Pike Mfg. Co.:  
Improved Family Grindstones, per inch, ½ doz. ..... \$2.00 1 2 3  
Pike Mower and Tool Grinder, each ..... \$6.00 1 2  
Velox Ball Bearing, Mounted, Angle Iron Frames, each ..... \$5.00

### Halters and Ties—

Covert Mfg. Co.:  
Web ..... 35¢45%  
Jute Rope ..... 50%  
Sisal Rope ..... 30¢10%  
Cotton Rope ..... 45%  
Hemp Rope ..... 45%

Covert's Saddlery Works:  
Web and Leather Halters ..... 70%  
Jute and Manila Rope Halters ..... 70%  
Sisal Rope Halters ..... 60¢20%  
Jute, Manila and Cotton Rope Ties ..... 70%  
Sisal Rope Ties ..... 60¢10%

E. T. Bug & Co.:  
Leather Halters ..... 50%  
Web Halters and Webbing ..... 60%  
Jute and Sisal Rope Halters ..... 60%  
Jute and Sisal Horse and Cattle Ties ..... 60%  
Cotton Horse Ties ..... 60%  
Livery Ties, Braided ..... 60%

### Hammers—

#### Handled Hammers—

Heller's Machinists' ..... 40¢10¢40¢10%  
Heller's Farriers' ..... 40¢10¢40¢10%  
Magnetic Tack, Nos. 1, 2, 3, \$1.25, \$1.50, \$1.75 ..... 50%  
Pech, Stow & Wilcox, Steel ..... 50%  
Fayette R. Plumb:  
Plumb, A. E. Nail ..... 33%¢7%¢33%¢10%  
Engineers' and R. S. Hand ..... 50%  
Machinists' Hammers ..... 50%  
Riveting and Tappers ..... 40%  
Sargent's C. S. New List ..... 40%

#### Heavy Hammers and Sledges—

Under 3 lb., per lb. 50¢  
3 to 5 lb., per lb. 40¢  
Over 5 lb., per lb. 30¢  
Wilkinson's Smiths' ..... 1 lb. 9¢10¢10%

#### Handles—

Agricultural Tool Handles  
Axe, Pick, Ac. .... 60¢50¢60¢10¢5%  
Hoe, Rake, Ac. .... 45¢50¢45%  
Fork, Shovel, Spade, Ac.:  
Long Handles ..... 45¢50¢45%  
D Handles ..... 40%  
Cross-Cut Saw Handles  
Atkins ..... 40%  
Champion ..... 45¢45¢10%  
Dixon's ..... 50%

#### Mechanics' Tool Handles—

Anger, assorted ..... gro. \$2.50¢2.85  
Brad Axl. .... gro. \$1.65¢1.85

Chisel Handles:  
Apple Tanged Firmer, gro. assorted ..... \$2.40¢2.65  
Hickory Tanged Firmer, gro. assorted ..... \$2.15¢2.40  
Apple Socket Firmer, gro. assorted ..... \$1.75¢1.95  
Hickory Socket Firmer, gro. assorted ..... \$1.45¢1.60  
Hickory Socket Framing, gro. assorted ..... \$1.60¢1.75  
File, assorted ..... gro. \$1.30¢1.40  
Hammer, Hatchet, Ac. .... 60¢10¢60¢10%  
Hand Saw, Varnished, doz. 80¢85¢; Not Varnished, .65¢75¢  
Plane Handles:  
Jack, doz. 30¢; Jack, Bolted, 75¢  
Fore, doz. 45¢; Fore, Bolted, 90¢  
Chapin-Stephens Co.:  
Carving Tool ..... 40¢40¢10%  
Chisel ..... 65¢65¢10%  
File and Awl ..... 65¢65¢10%  
Saw and Plane ..... 40¢40¢10%  
Screw Driver ..... 40¢40¢10%  
Millers Falls Adj. and Ratchet Auger Handles ..... 15¢10%  
Nicholson Simplicity File Handle ..... 40%  
Hangers—

NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, etc.

Barn Door, New Pattern, Round Groove, Regular:  
Inch ..... 3 5 6 8  
Single Doz. \$0.90 1.25 1.60 1.95 2.50  
Barn Door, New England Pattern, Check Back, Regular:  
Inch ..... 3 4 5 6  
Single Doz. .... \$1.30 1.55 2.50 3.00

### Allth Mfg. Co.: Reliable, No. 1 ..... per doz. \$8.00 Reliable, No. 2 ..... per doz. \$9.00 Chicago Spring Butt Co.: Friction ..... 25% Oscillating ..... 25% Big Twin ..... 25% Chisholm & Moore Mfg. Co.: Baggage Car Door ..... 50% Elevator ..... 30% Railroad ..... 50% Cronk & Carrier Mfg. Co.: Loose Axle, No. 10, \$12.00 ..... 70% Roller Bearing, No. 11, \$15.00 ..... 70% Roller Bearing, Ex. Hy., No. 22, \$18.00 ..... 70% Hinged Hangers, \$16.00 ..... 60¢10% Lane Bros. Parlor Ball Bearing ..... \$4.00 Parlor, Standard ..... \$3.15 Parlor, No. 105 ..... \$2.85 Parlor, New Model ..... \$2.80 Parlor, New Champion ..... \$2.25 Barn Door, Standard, 60¢10% Hinged ..... net \$6.40 Covered ..... 60¢10% Special ..... 70¢5% Lawrence Bros.: Advance ..... 60¢10% Chippier, No. 75 ..... 75% Crown ..... 60¢10% Easy Parlor Door, Dbl. Sets, \$2.50; Single Sets, \$1.25 ..... 60¢5% Giant ..... 60¢5% Hummer ..... 70¢45% New York ..... 60¢10% Peerless ..... 75% Sterling ..... 60¢10% McKinney Mfg. Co.: No. 1, Special, \$15 ..... 60¢10% No. 2, Standard, \$18 ..... 60¢10% Hinged Hangers, \$16 ..... 60¢5% Meyers' Stayon Hangers ..... 60¢5% Richards Mfg. Co.: Pioneer Wood Track No. 3, \$2.00 Ball B'r'g 8'x1 Track No. 10, 5.5¢10% Roller B'r'g 8'x1 Track No. 12, 4.2¢15% Roller B'r'g 8'x1 Track No. 13, 3.2¢30% Hero, Adj. Track No. 19, 5.0¢10% Adjustable Track Tandem Trolley Track No. 16 ..... 60¢10% Seal, Steel Track No. 8 ..... \$2.25 Auto Adj. Track No. 22, 5.0¢10% Trolley B. D. No. 11 ..... \$1.25 Trolley F. D. No. 120 ..... \$2.10 Trolley F. D. No. 121 ..... \$2.25 Trolley F. D. No. 150 ..... \$2.35 Safety Underwriters F. D. No. 101 ..... 50% Palmer No. 44, 2.2¢ and 3 60¢10% Tandem Adjustable Track No. 132 ..... 50¢10% Royal, Adjustable Track No. 122 ..... 50¢10% Ires' Wood Track No. 1 ..... \$2.00 Trolley B. D. No. 20 ..... 50¢10% Trolley B. D. No. 24 ..... \$1.30 Trolley B. D. No. 27 ..... \$1.40 Trolley B. D. No. 28 ..... \$1.60 Roller Bearings Nos. 39, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399, 401, 403, 405, 407, 409, 411, 413, 415, 417, 419, 421, 423, 425, 427, 429, 431, 433, 435, 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837, 839, 841, 843, 845, 847, 849, 851, 853, 855, 857, 859, 861, 863, 865, 867, 869, 871, 873, 875, 877, 879, 881, 883, 885, 887, 889, 891, 893, 895, 897, 899, 901, 903, 905, 907, 909, 911, 913, 915, 917, 919, 921, 923, 925, 927, 929, 931, 933, 935, 937, 939, 941, 943, 945, 947, 949, 951, 953, 955, 957, 959, 961, 963, 965, 967, 969, 971, 973, 975, 977, 979, 981, 983, 985, 987, 989, 991, 993, 995, 997, 999, 1001, 1003, 1005, 1007, 1009, 1011, 1013, 1015, 1017, 1019, 1021, 1023, 1025, 1027, 1029, 1031, 1033, 1035, 1037, 1039, 1041, 1043, 1045, 1047, 1049, 1051, 1053, 1055, 1057, 1059, 1061, 1063, 1065, 1067, 1069, 1071, 1073, 1075, 1077, 1079, 1081, 1083, 1085, 1087, 1089, 1091, 1093, 1095, 1097, 1099, 1101, 1103, 1105, 1107, 1109, 1111, 1113, 1115, 1117, 1119, 1121, 1123, 1125, 1127, 1129, 1131, 1133, 1135, 1137, 1139, 1141, 1143, 1145, 1147, 1149, 1151, 1153, 1155, 1157, 1159, 1161, 1163, 1165, 1167, 1169, 1171, 1173, 1175, 1177, 1179, 1181, 1183, 1185, 1187, 1189, 1191, 1193, 1195, 1197, 1199, 1201, 1203, 1205, 1207, 1209, 1211, 1213, 1215, 1217, 1219, 1221, 1223, 1225, 1227, 1229, 1231, 1233, 1235, 1237, 1239, 1241, 1243, 1245, 1247, 1249, 1251, 1253, 1255, 1257, 1259, 1261, 1263, 1265, 1267, 1269, 1271, 1273, 1275, 1277, 1279, 1281, 1283, 1285, 1287, 1289, 1291, 1293, 1295, 1297, 1299, 1301, 1303, 1305, 1307, 1309, 1311, 1313, 1315, 1317, 1319, 1321, 1323, 1325, 1327, 1329, 1331, 1333, 1335, 1337, 1339, 1341, 1343, 1345, 1347, 1349, 1351, 1353, 1355, 1357, 1359, 1361, 1363, 1365, 1367, 1369, 1371, 1373, 1375, 1377, 1379, 1381, 1383, 1385, 1387, 1389, 1391, 1393, 1395, 1397, 1399, 1401, 1403, 1405, 1407, 1409, 1411, 1413, 1415, 1417, 1419, 1421, 1423, 1425, 1427, 1429, 1431, 1433, 1435, 1437, 1439, 1441, 1443, 1445, 1447, 1449, 1451, 1453, 1455, 1457, 1459, 1461, 1463, 1465, 1467, 1469, 1471, 1473, 1475, 1477, 1479, 1481, 1483, 1485, 1487, 1489, 1491, 1493, 1495, 1497, 1499, 1501, 1503, 1505, 1507, 1509, 1511, 1513, 1515, 1517, 1519, 1521, 1523, 1525, 1527, 1529, 1531, 1533, 1535, 1537, 1539, 1541, 1543, 1545, 1547, 1549, 1551, 1553, 1555, 1557, 1559, 1561, 1563, 1565, 1567, 1569, 1571, 1573, 1575, 1577, 1579, 1581, 1583, 1585, 1587, 1589, 1591, 1593, 1595, 1597, 1599, 1601, 1603, 1605, 1607, 1609, 1611, 1613, 1615, 1617, 1619, 1621, 1623, 1625, 1627, 1629, 1631, 1633, 1635, 1637, 1639, 1641, 1643, 1645, 1647, 1649, 1651, 1653, 1655, 1657, 1659, 1661, 1663, 1665, 1667, 1669, 1671, 1673, 1675, 1677, 1679, 1681, 1683, 1685, 1687, 1689, 1691, 1693, 1695, 1697, 1699, 1701, 1703, 1705, 1707, 1709, 1711, 1713, 1715, 1717, 1719, 1721, 1723, 1725, 1727, 1729, 1731, 1733, 1735, 1737, 1739, 1741, 1743, 1745, 1747, 1749, 1751, 1753, 1755, 1757, 1759, 1761, 1763, 1765, 1767, 1769, 1771, 1773, 1775, 1777, 1779, 1781, 1783, 1785, 1787, 1789, 1791, 1793, 1795, 1797, 1799, 1801, 1803, 1805, 1807, 1809, 1811, 1813, 1815, 1817, 1819, 1821, 1823, 1825, 1827, 1829, 1831, 1833, 1835, 1837, 1839, 1841, 1843, 1845, 1847, 1849, 1851, 1853, 1855, 1857, 1859, 1861, 1863, 1865, 1867, 1869, 1871, 1873, 1875, 1877, 1879, 1881, 1883, 1885, 1887,

### Wrought Iron Hinges—

Strap and T Hinges, etc., list  
December 20, 1904:

Light Strap Hinges.....	70%
Heavy Strap Hinges.....	75%
Light T Hinges.....	65%
Heavy T Hinges.....	60%
Extra Heavy T Hinges.....	70%
Hinge Hangers.....	50%
Cor. Heavy Strap.....	75%
Cor. Ex. Heavy T.....	70%
Screw Hook.....	6 to 12 in. 10.3%
and Strap.....	14 to 20 in. 10.3%
Screw Hook and Eye.....	22 to 30 in. 10.3%

1/4 to 1 inch.....	10.6%
1/2 inch.....	10.7%
3/4 inch.....	10.9%

### Hitchers—Stall—

Covert Mfg. Co., Stall Hitchers.....35%

### Hods—Coal—

Inch.....	15	16	17	18
Galv. Open.....	\$2.50	2.75	3.00	3.25
Galv. Open.....	\$1.90	2.10	2.25	2.55
Galv. Funnel.....	\$3.00	3.30	3.60	3.90
Galv. Funnel.....	\$2.45	2.65	2.85	3.30

### Masons' Etc.—

Avery-Caldwell Mfg. Co.:	
Steel Brick.....	each \$1.00
Steel Mortar.....	each \$1.25
Cleveland Wire Spring Co.:	
Steel Brick, No. 102.....	each \$0.95
Steel Mortar, No. 138.....	each \$1.25

### Hoes—Eye—

Scovill and Oval Pattern.....

Grub, list Feb. 23, 1899.....

D. & H. Scovill.....

### Handled—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Cronk's Weeding No. 1, \$2.00; No. 2, \$2.25

Ft. Madison Cotton Hoe.....70%

Ft. Madison Crescent Cultivator Hoe.....70%

Ft. Madison Mattock Hoes.....70%

Regular Weight.....\$ doz. 66%

Junior Size.....\$ doz. 44.00

Ft. Madison Spading Hoe.....\$ doz. 50%

Ft. Madison Dixie Tobacco Hoe.....75%

Kretzinger's Cut Easy.....70%

Warren Hoe.....75%

W. & C. Ironhoe.....\$3.15

R. B. 6 in. Cultivator Hoe.....\$3.15

R. B. 6 1/2 in. ....\$3.35

Acme Weeding.....\$ doz. net, \$4.35

W. & C. L'ning Shuttle Hoe.....\$ doz. \$4.85

### Hoisting Apparatus—

See Machines, Hoisting.

### Holders—Bit—

Angular, \$ doz. \$24.00.....45%10%

### Door—

Bardley's.....45%

Empire.....60%10%

Pullman.....50%

### File and Tool—

Nicholson File Holders and File Handles.....33%40%

### Fruit Jar—

Triumph Fruit Jar Holder, \$ gro. \$10.80; \$ doz. ....\$1.25

### Hones—Razor—

Pike Mfg. Co., Belgian, German and Swat.....4%

### Hooks—Cast Iron—

Bird Cage, Reading.....40%

Bird Cage, Sargent's List.....60%10%

Ceiling, Sargent's List, Nos. 29, 32, 33, 125, 132, 133 and 135.....50%10%10%

Clothes Line, Reading List.....40%

Clothes Line, Sargent's List.....50%10%10%

Clothes Line, Stowell's.....70%

Coat and Hat, Reading.....45%20%

Coat and Hat, Stowell's.....70%

Coat and Hat, Wrightsville.....65%

Harness, Reading List.....80%

Harness, Stowell's.....80%

School House.....70%

### Wire—

Belt.....80%10%10%

Wire C. & H. Hooks.....75%10%10%

Atlas, Coat and Hat.....75%10%

Bradley Metal Clasp Coat and Hat.....75%10%

Columbian Hdw Co., Gem.....70%10%

Parker Wire Goods Co., King.....75%10%

Van Wagoner, Coat and Hat.....75%

Western W. G. Co., Molding.....75%

Wire Goods Co.:

Acme.....60%10%

Chief.....70%

Crown.....85%

V Brace.....75%

Czar Harness.....50%10%

### Wrought Iron—

Box, 6 in., per doz., \$1.00; 8 in., \$1.25; 10 in., \$2.50.

Cotton.....doz. \$1.05@1.25

Wrought Staples, Hooks, &c.—See Wrought Goods.

### Miscellaneous—

Hooks, Bench, see Stops, Bench.

Bush, Light, doz. \$4.75; Medium, \$5.35; Heavy, \$6.25

Grass, best, all sizes, per doz. \$1.50

Grass, common grades, all sizes, per doz. ....\$1.30

Whiffletree.....lb. 5%@6%

Hooks and Eyes:

Brass.....60%10%50%10%10%

Malleable Iron.....70%10%70%10%10%

Covert Mfg. Co. Gate and Seattle Hooks.....35%

Covert Saddlery Works' Self Locking Gate and Door Hook.....60%

Ft. Madison Cut-Easy Corn Hooks.....\$ doz. \$3.25 net

Bench Hooks—See Bench Stops.

Corn Hooks—See Knives, Corn.

### Horse Nails—

See Nails, Horse.

### Horseshoes—

See Shoes, Horse.

### Hose, Rubber—

Garden Hose, 3/4-inch:

Competition.....ft. 5 @ 6

3-ply Standard.....ft. 8 @ 9

4-ply Standard.....ft. 10 @ 11

3-ply extra.....ft. 11 @ 13

4-ply extra.....ft. 14 @ 16

Cotton Garden, 3/4-in., coupled:

Low Grade.....ft. 8 @ 9

Fair Quality.....ft. 10 @ 11

### Irons—Saw—

From 4 to 10.....lb. 2%@3

B. B. Saw Irons.....lb. 3%@4

Chinese Laundry.....lb. 4%@5

Chinese Saw.....lb. 4%@5

Mrs. Potts', cents per set:

Nos.....50 55 60 65

Jap'd Tops.....62 59 72 69

Tin'd Tops.....65 62 75 72

New England Pressing, lb. 3%@4

### Pinking—

Pinking Irons.....doz. 50@60

### Irons, Soldering—

See Coppers.

### Jacks, Wagon—

Covert Mfg. Co.:

Auto Screw.....30@2

Steel.....45%

Covert's Saddlery Works:

Daisy.....60%10%

Victor.....60%

Lockport.....60%

Lane's Steel.....60%10%

Richards' Tiger Steel, No. 130.....50%10%

Smith & Hemenway Co.'s.....25%

### Kettles—

Brass, Spun, Plain.....20@25%

Enamelled and Cast Iron—See Ware, Hollow.

### Knives—

Butcher, Kitchen, &c.—

Forster Bros., Butcher, &c.....30%

Wilkinson Shear & Cutlery Co.....50%

### Corn—

Withington Acme, \$ doz. \$2.65;

Dent, \$2.75; Adj. Serrated, \$2.20;

Serrated, \$2.10; Yankee No. 1, \$1.50;

Yankee No. 2, \$1.15.

### Drawing—

Standard List.....75%

C. Jennings & Co., Nos. 45, 46, 40;

Jennings & Griffin, Nos. 41, 42.....70%

Ohio Tool Co.'s.....70%

Swan's.....75%

Watrous.....16%

L. & I. J. White.....20%50%

### Hay and Straw—

Serrated Edge, per doz. \$5.25@5.50

Iwan's Sickle Edge.....\$ doz. \$2.50

Iwan's Serrated.....\$ doz. \$10.00

### Mincing—

Buffalo.....\$ gro. \$13.00

### Miscellaneous—

Farriers'.....\$ doz. \$3.00@3.25

Wostenholm's.....\$ doz. \$3.00@3.25

### Knobs—

Base, 2 1/2-inch, Birch, or Maple,

Rubber tip.....\$ gro. \$1.15@1.20

Carriage, Jap., all sizes.....\$ gro. 10@15

Door, Mineral.....\$ doz. 65@70

Door, Por. Jap'd.....\$ doz. 70@75

Door, Por. Nickel.....\$ doz. 2.05@2.15

Bardley's Wood Door, Shutters, &c. 15%

Picture, Sargent's.....60%10%10%

### Lacing, Leather—

See Belting, Leather.

### Ladders, Store, &c.—

Lane's Store.....25%

Myers' Noiseless Store Ladders.....50%

Richards Mfg. Co.:

Improved Noiseless, No. 112.....50%

Climax Shelf, No. 113.....50%

Trolley, No. 109.....50%

### Lades, Melting—

L. & G. Mfg. Co. (low list).....25%

P. S. & W.....50%

Reading.....60%

Sargent's.....50%10%

### Lanterns—Tubular—

Regular Tubular, No. 0.....

doz. \$1.25@1.85

Lift Tubular, No. 0.....

doz. \$1.50@2.15

Hinge Tubular, No. 0.....

doz. \$4.50@5.15

Other Styles.....40%10%10%10%5%

Bull's Eye Police.....

No. 1, 2 1/2-inch.....\$2.50@2.75

No. 2, 3-inch.....\$2.75@3.00

Lasts and Stands, Shoe—

Stowell's Atlas, Malleable Iron.....50%

Stowell's Badger, Cast Iron.....50%

Latches—Thumb—

Roggin's Latches, with screw.....

doz. 35@40

Door—

Cronk & Carrier Mfg. Co., No. 101.....

\$ doz. \$2.90

Cronk & Carrier Mfg. Co., Latch.....

Hasp and Staples.....50%

Richards' Bull Dog, Heavy.....50%

Richards' Trump.....\$1.50

Leaders, Cattle—

Small.....\$ doz. 50¢; large, 60¢

Covert Mfg. Co., Cotton and Hemp.....45%

Lifters, Transom—

R. & E.....33%4%

Wire Clothes, Nos. 18.....20 20

100 feet.....\$2.20 2.00 1.70

75 feet.....\$1.80 1.70 1.30

Samson Cordage Works:

Solid Braided Chalk, Nos. 0 to 3.....40%

Silver Lake Braided Chalk, No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50.....\$ gr. 20%

Masons' Lines, Shade Cord, &c.:

White Cotton, No. 3 1/2, \$1.50; No. 4, \$2.00; No. 4 1/2, \$2.50; Colors, No. 3 1/2, \$1.75; No. 4, \$2.25; No. 4 1/2, \$2.75;

Linen, No. 3 1/2, \$2.50; No. 4, \$3.50; No. 4 1/2, \$4.50.....20%

Tent and Awning Lines: No. 5, White Cotton, \$7.50; Drab Cotton, \$8.50;

Clothes Lines, White Cotton: 50 ft., \$2.75; 60 ft., \$3.25; 70 ft., \$3.75; 75 ft., \$4.00; 80 ft., \$4.25; 90 ft., \$4.75; 100 ft., \$5.25.....20%

Anniston Waterproof Clothes, 50 ft., \$9.00; Gilt Edge, \$22.00; Air Line, \$22.00; Acme, \$17.00; Alabama, \$15.00; Empire, \$14.00; Advance, \$13.50; Oriole, \$20.00; Albemarle, \$13.50; Eclipse, \$12.50; Chicago, \$11.00; Standard, \$10.00; Columbia, \$8.50; Allston, \$12.50; Calhoun, \$11.00.

### Locks—Cabinet—

Cabinet Locks.....33 1/2%@33 1/2%@7 1/2%

### Door Locks, Latches, &c.—

NOTE.—Net Prices are very often made on these goods.

Reading Hardware Co.....40%

R. & E. Mfg. Co.....40%

Sargent & Co.....40%10%

Stowell's Steel Door Latches.....30%

Slater's Felt (roll 500 sq. ft.)	75¢
R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.)	\$2.75
<b>Sand and Emery—</b>	
Flint Paper and Cloth	60¢ to 10¢
Garnet Paper and Cloth	25¢
Emery Paper and Cloth	50¢ to 60¢
<b>Parers— Apple—</b>	
Advance	doz. \$4.00
Baldwin	doz. \$4.00
Bonanza Improved	each \$6.50
Daisy	doz. \$7.00
Dandy	each \$7.50
Eureka Improved	each \$20.00
Family Bay State	doz. \$15.00
Improved Bay State	doz. \$36.00
Little Star	doz. \$5.00
New Lightning	doz. \$7.00
Reading 72	doz. \$3.25
Reading 78	doz. \$6.25
Rocking Table	doz. \$6.25
Turn Table	doz. \$6.00
White Mountain	doz. \$5.00
<b>Potato—</b>	
Saratoga	doz. \$7.00
White Mountain	doz. \$6.00
<b>Picks and Mattocks—</b>	
List Feb 23, 1899	75¢ to 1.50
Cronk's Handled Garden Mattock	doz. \$6.40
Pinking Irons—	See Irons, Pinking.
<b>Pins, Escutcheon—</b>	
Brass	60¢ to 10¢
Iron, list Nov. 11, '85	60¢ to 10¢
<b>Pipe, Cast Iron Soil—</b>	
Carload lots.	
Standard, 2-6 in.	60¢
Extra Heavy, 2-6 in.	70¢
Fittings	75¢
<b>Pipe, Merchant—</b>	
Carload Lots.	
Steel.	
Blk. Galv. Blk. Galv.	
1/4 & 1/2 in.	67¢ 51¢ 65¢ 49¢
3/4 & 1 in.	71¢ 59¢ 69¢ 57¢
1 1/2 to 6 in.	75¢ 65¢ 73¢ 63¢
7 to 12 in.	70¢ 55¢ 68¢ 53¢
<b>Pipe, Vitrified Sewer—</b>	
Carload lots.	
Standard Pipe and Fittings, 2 to 24 in.	
New England	68¢
New York and New Jersey	71¢
Maryland, Delaware, E. Pa.	75¢
West. Pa. and West Va.	76¢
Virginia	77¢
Ohio, Michigan and Ky.	77¢
Indiana	77¢
<b>NOTE—</b> Carload lots are generally delivered.	
<b>Pipe, Stove—</b>	
Edwards' Nested Stove Pipe:	
5 in., per 100 joints	\$7.00
6 in., per 100 joints	7.50
7 in., per 100 joints	8.50
<b>Planes and Plane Irons—</b>	
<b>Wood Planes—</b>	
Bench, first qual.	40¢ to 10¢
Bench, second qual.	50¢ to 10¢
Molding	33¢ to 10¢
Bailey's (Stanley R. & L. Co.)	40¢
Chapin-Stephens Co.:	
Bench, first quality	40¢ to 10¢
Bench, second quality	50¢ to 10¢
Molding	33¢ to 10¢
Toy and German	40¢ to 10¢
Haplin's	60¢
Ohio Tool Co.:	
Bench, first quality	40¢ to 10¢
Bench, second quality	50¢ to 10¢
Molding	33¢ to 10¢
Adjustable Wood Bottom	60¢
Union	60¢
<b>Iron Planes—</b>	
Bailey's (Stanley R. & L. Co.)	40¢
Chaplin's Iron Planes	50¢ to 10¢
Miscellaneous Planes (Stanley R. & L. Co.)	35¢
Ohio Tool Co.'s Iron Planes	50¢
Sargent's	60¢
Union	60¢
<b>Plane Irons—</b>	
Wood Bench Plane Irons	25¢ to 30¢
Buck Bros.	30¢
Chapin-Stephens Co.	30¢ to 10¢
Ohio Tool Co.	30¢
Stanley R. & L. Co.	35¢
Union	35¢
L. & I. J. White	25¢ to 30¢
<b>Planters, Corn, Hand—</b>	
Kohler's Eclipse	doz. \$8.50
<b>Plates—</b>	
Felloc	lb. 3¢ to 4¢
Self-Sealing Pie Plates (S. S. & Co.)	doz. \$2.00
<b>Pliers and Nippers—</b>	
Butt Pliers	75¢ to 10¢ to 80¢
Gas Burner, per doz., 3 in.	\$1.25
Gas Pipe, 7 8 10 12 in.	\$2.00 \$2.25 \$3.00 \$3.75
Acme Nippers	50¢ to 10¢
Cronk & Carrier Mfg. Co.	75¢ to 10¢
Stub's Pattern	50¢
Combination and others	33¢ to 10¢
Heller's Farriers' Nippers, Pincers and Tools	40¢ to 10¢ to 10¢ to 10¢
P. S. & W. Tinner's Cutting Nippers	50¢
Swedish Slide End and Diagonal Cutting Pliers	50¢
Utica Drop Forge & Tool Co.	50¢
Pliers and Nippers, all kinds	40¢
<b>Plumbs and Levels—</b>	
Chapin-Stephens Co.:	
Plumbs and Levels	30¢ to 10¢ to 10¢ to 10¢
Pocket Levels	30¢ to 10¢ to 10¢ to 10¢
Diston's Plumbs and Levels	70¢
Diston's Pocket Levels	70¢
C. E. Jennings & Co.'s Iron	35¢ to 10¢

C. E. Jennings & Co.'s Iron, Adjustable	40¢ to 10¢
Stanley R. & L. Co.	45¢
Stanley's Duplex	35¢
Woods' Extension	33¢ to 10¢
<b>Poachers, Eggs—</b>	
Buffalo Steam Egg Poachers	doz. \$9.00
No. 1, \$6.00; No. 2, \$9.00; No. 3, \$9.00; No. 4, \$12.00	50¢
<b>Points, Glaziers—</b>	
Bulk and 1-lb. papers, lb. 8 1/2 @ 9	¢
1/4-lb. papers	lb. 9 @ 10 1/2 ¢
<b>Pokes, Animal—</b>	
Ft. Madison Hawkeye	doz. \$3.25
Ft. Madison Western	doz. \$4.00
<b>Police Goods—</b>	
Manufacturers' Lists	25¢ to 25¢ to 45¢
Tower's	25¢
<b>Polish—Metal, Etc—</b>	
Glasbrite, No. 2, 5 lb can (powder), each, \$1.25; doz., \$12.00; No. 2, 10 lb can (cake), each, \$2.50; doz., \$24.00	
Prestoline Liquid, No. 1 (1/4 pt.), doz., \$3.00; No. 2 (1 qt.), \$9.72	40¢
Prestoline Paste	40¢
George William Hoffman:	
U. S. Metal Polish Paste, 3 oz. boxes, doz. 50¢; 1 lb. boxes, doz. \$1.25; 1 lb. boxes, doz. \$2.25	
U. S. Liquid, 3 oz. cans, doz., \$1.25; 1 lb. cans, doz., \$12.00	
Barkeepers' Friend Metal Polish, doz., \$1.75; 1 lb. cans, doz., \$18.00	
Wynn's White Silk, 1/2 pt. cans, doz., \$2.00	
<b>Stove—</b>	
Black Eagle Benzine Paste, 5 lb cans, doz., \$10.00	
Black Eagle, Liquid, 1/4 pt. cans, doz., \$7.50	
Black Jack Paste, 1/4 lb cans, doz., \$9.00	
Black Kid Paste, 5 lb cans, each, \$0.65	
Ladd's Black Beauty Liquid, per 100 tins	\$6.75
Joseph Dixon's, 1 lb gr., \$5.75	10¢
Dixon's Plumbago, 1 lb gr., \$2.50	10¢
Firestone, 1 lb gr., \$4.50	10¢
Gem, 1 lb gr., \$4.50	10¢
Japanese, 1 lb gr., \$3.50	10¢
Jet Black, 1 lb gr., \$3.50	10¢
Peerless Iron Enamel, 10 oz. cans, doz., \$1.50	
Wynn's:	
Black Silk, 5 lb pail, each 70¢	
Black Silk, 1/4 lb box, doz., \$1.00	
Black Silk, 5 oz. box, doz., \$0.75	
Black Silk, 1/2 pt. liq., doz., \$1.00	
<b>Poppers, Corn—</b>	
1 qt., Square	gro. \$9.00
1 qt., Round	gro. \$10.00
1 1/2 qt., Square	gro. \$11.00
2 qt., Square	gro. \$13.00
<b>Post Hole and Tree Augers and Diggers—</b>	
See also Diggers, Post Hole, &c.	
<b>Posts, Steel—</b>	
Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6 1/2 ft., 48¢	
Steel Hitching Posts	each \$1.30
<b>Potato Parers—</b>	
See Parers, Potato.	
<b>Pots, Glue—</b>	
Enameled	40¢
Tinned	35¢
<b>Powder—</b>	
In Canisters:	
Duck, 1 lb.	each 45¢
Fine Sporting, 1 lb.	each 75¢
Rifle, 1/2 lb.	each 15¢
Rifle, 1 lb.	each 25¢
In Kegs:	
12 1/2-lb. kegs	\$3.50
25-lb. kegs	\$4.50
King's Semi-Smokeless:	
Keg (25 lb bulk)	\$6.50
Half Keg (12 1/2 lb bulk)	\$3.50
Quarter Keg (6 1/2 lb bulk)	\$1.90
Case 24 (1 lb cans bulk)	\$4.50
Half case (1 lb cans bulk)	\$4.50
King's Smokeless:	
Keg (25 lb bulk)	\$12.00 \$15.00
Half Keg (12 1/2 lb bulk)	6.25 7.75
Quarter Keg (6 1/2 lb bulk)	3.25 4.00
Case 24 (1 lb cans bulk)	14.00 17.00
Half case 12 (1 lb c. bk.)	7.25 8.75
Robin Hood Smokeless Shot Gun	\$6.00 to 20¢
<b>Presses—</b>	
<b>Fruit and Jelly—</b>	
Enterprise Mfg. Co.	20¢ to 25¢
<b>Seal Presses—</b>	
Morrill's No. 1	doz. \$20.00
Morrill's No. 2	doz. \$20.00
<b>Pruning Hooks and Shears—</b>	
See Shears.	
<b>Pullers, Cork—</b>	
Invincible Cork Puller	doz. \$21.00
<b>Pullers, Nail—</b>	
Cyclops	50¢
Miller's Falls, No. 3, doz.	\$12.00
Morrill's No. 1, Nail Puller, doz.	\$20.00
Pearson No. 1, Cyclone Spike Puller, each \$30.00; doz., \$9.00	40¢ to 10¢
Pelican, doz.	\$9.00
Scranton, Case Lots:	
No. 2B (large)	\$5.50
No. 3B (small)	\$5.00
Smith & Hemmingsway Co.	
Diamond B, No. 2, case lots	doz. \$6.00
Diamond B, No. 3, case lots	doz. \$5.50
Giant No. 1, doz.	\$18.00
\$16.50; No. 3, \$15.00	33¢ to 10¢
Staple Pullers	60¢
Parrot Tack and Stub Puller, doz.	\$5.00
75¢; doz., \$6.00	
<b>Pulleys, Single Wheel—</b>	
Inch	1 1/4 1 3/4 2 3
doz.	\$0.30 .45 .60 1.05
Hay Fork, Acivel or Solid Eye, doz., 4 in.	\$1.25; 5 in., \$1.55
Inch	2 2 1/4 2 1/2
Hot House, doz.	\$0.65 .85 1.20
Inch	1 1/4 1 3/4 2
Screw, doz.	\$0.16 .19 .23 .30

Inch	1 1/4 2 2 1/4 2 1/2
Side, doz.	\$0.25 .40 .55 .80
Inch	1 1/4 1 3/4 2 2 1/4
<b>Stowell's:</b>	
Ceiling or End, Anti-Friction	60¢ to 10¢
Dumb Waiter, Anti-Friction	60¢ to 10¢
Electric Light	60¢ to 10¢
Side, Anti-Friction	60¢ to 10¢
<b>Sash Pulleys—</b>	
Common Frame; Square or Round End, per doz., 1 1/4 and 2 in.	16¢ to 19¢
Auger Mortise, no Face Plate, per doz., 1 1/4 and 2 in.	16¢ to 19¢
Acme	1 1/4 in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 1, 2 in.	50¢
Grand Rapids All Steel Noiseless	50¢
Ideal	70¢ to 10¢
Niagara	1 1/4 in., 16¢; 2 in., 19¢
No. 26, Troy, 1 1/4 in., 14¢; 2 in., 16 1/2¢	
Star	1 1/4 in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.	
<b>Pumps—</b>	
Cistern	60¢ to 10¢ to 10¢
Pitcher Spout	60¢ to 10¢ to 10¢
Wood Pumps, Tubing, &c.	45¢ to 50¢
Barnes Dbl. Acting (low list)	50¢
Barnes' Pitcher Spout	75¢ to 10¢ to 10¢
Contractors' Rubber Diaphragm No. 2, B. & L. Block Co.	\$16.00
Daisy Spray Pump	doz. \$6.75
Flint & Walling's, Fast Mail Hand, (low list)	55¢
Flint & Walling's, Fast Mail (low list)	55¢ to 5¢
Flint & Walling's, Tight Top Pitcher	55¢ to 5¢
National Specialty Mfg. Co., Measuring, 60.00	30¢
Mechanical Sprayer	\$6.00
Myers' Pumps (low list)	50¢
Myers' Power Pumps	50¢
Myers' Spray Pumps	50¢ to 10¢
<b>Pump Leathers—</b>	
Plunger and Lower Valve—Per gro.	
Inch	2 2 1/4 2 1/2 2 3/4
doz.	\$2.20 2.50 2.75 3.00
Inch	3 3 1/4 3 1/2 3 3/4
doz.	\$3.30 3.60 3.85 4.10 4.40
<b>Plunger Cup Leathers—Per 100:</b>	
Inch	2 1/2 3 3 1/4 3 1/2
doz.	\$2.75 3.85 5.00 6.00
<b>Punches—</b>	
Saddlers' or Drive, good	doz. 60¢ to 75¢
Spring, single tube, good quality	doz. \$1.75 to \$2.00
Revolving (4 tubes)	doz. \$3.50 to \$3.75
Bemis & Call Co.'s Cast St'l Drive	50¢
Bemis & Call Co.'s Check	55¢
Morrill's Nos. 1A, 1A, 1B, 1C	\$15.00
Hercules, 1 die, each	\$5.00
Niagara Hollow Punches	40¢
Niagara Solid Punches	55¢ to 10¢
Steel Screw, B. & K. Mfg. Co.	50¢
Tinner's Hollow, P. S. & W. Co.	40¢
Tinner's Solid, P. S. & W. Co.	40¢
doz., \$1.41	60¢
<b>Rail—Barn Door, &amp;c.—</b>	
Cast Iron Barn Door; Flange Screw Holes for Rd. Groove Wheels:	
1/2 3/4 1 in.	\$2.50 \$3.00 \$4.40 100 feet.
Angular for Sq. Groove Wheels:	
Small. Med. Large.	\$2.00 \$2.70 \$3.60 100 feet.
Sliding Door, Painted Iron	2 1/2 @ 2 1/2 ¢
Sliding Door, Wrought Brass,	
1 1/4 in., lb., 36¢	30¢
Allith Mfg. Co.	
No. 1, Reliable Hgr. Track, 1/2 ft. 5 1/2¢	
No. 2, Reliable Hgr. Track, 1/2 ft. 7¢	
Crown:	
Double Braced Steel Rail, 1/2 ft. 2 1/2¢	
O. N. T. Rail	2 1/2¢
Griffin's:	
xxx, 100 ft., 1 x 3-16 in., \$3.00;	
1 1/4 x 3-16 in., 3.50;	
Hinged Hanger, 100 ft., 1 x 3-16 in., \$3.10; 1 1/4 x 3-16 in., \$3.60.	
Lane's:	
Hinged Track, 100 ft., 1 in., \$3.70; 1 1/4 in., \$4.40.	
O. N. T., 100 ft., 1 in., \$2.75; 1 1/4 in., \$3.50; 1 1/2 in., \$4.00.	
Standard, 100 ft., 1 in., \$4.00	
Lawrence Bros.:	
100 ft., No. 201, \$4.00; No. 202, \$4.00	
New York, 1 x 3-16 in., 100 ft. \$2.75	
McKinney's:	
Hinged Hanger Rail, 1/2 ft., 11¢	50¢
None Better	1/2 ft. 3¢
Standard	1/2 ft. 4¢
Myers' Stayon Track	60¢ to 10¢
Richards' Mfg. Co.:	
Common 1 x 3-16 in., \$2.25; 1 1/4 x 3-16, \$2.50; 1 1/2 x 3-16, \$2.75.	
Special Hinged Hanger Rail	60¢ to 10¢
Lag Screw Rail, No. 65	50¢
Gauge Trolley Track, 1/2 ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢	
Safety Door Hanger Co.'s Storm King Safety	60¢
Safety Door Hanger Co.'s U. S. Standard	60¢
Stowell's:	
Cast Rail	1/2 ft. 1 1/2¢
Steel Rail, Plain	25¢
Wrought Bracket, 1 1/4 x 3-16 in., 1/2 ft. 3¢	
Wrought Bracket, 1 1/4 x 5-16 in., 1/2 ft. 7¢	
Swett's Hylro, 1/2 ft. 11¢	60¢
P. L. B. Steel Rail	100 ft. \$3.00
No. 0, 1 x 3-16 in.	100 ft. \$2.75
<b>Rakes—</b>	
<b>NOTE—</b> Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.	
Fort Madison Red Head Lawn	\$3.25
Fort Madison Blue Head Lawn	\$2.70
Fackson Lawn, 29 and 30 teeth, doz. set	\$4.25
Cronk's:	
New Champion Garden, doz. 12 teeth, \$15.00; 14, \$16.50; 16, \$18.00	75¢

Victor Garden, 9 doz. 12 teeth,	\$15.00; 14, \$16.50; 16, \$18.00.	80%
Queen City Lawn, 9 doz. 20 teeth,	\$3.45; 21, \$3.60.	
Anticlog Lawn, 9 doz.		\$4.00
Malleable Garden.	70¢ to 10¢	
<b>Kohler's:</b>		
Lawn Queen, 20-tooth.	9 doz.	\$3.45
Lawn Queen, 24-tooth.	9 doz.	\$3.60
Paragon, 20-tooth.	9 doz.	\$2.75
Paragon, 24-tooth.	9 doz.	\$3.00
Steel Garden, 14-tooth.	9 doz.	\$2.40
Malleable Garden, 14-tooth.	9 doz.	\$2.40
Weldless Steel Garden.		\$1.75 to 2.00
<b>Rasps, Horse—</b>		
Diston's		75%
Heller Bros.	70¢ to 10¢ to 10¢ to 10¢	
McCaffrey's American Std.	60¢ to 10¢ to 10¢	
New Nicholson	70¢ to 10¢ to 10¢	
See also Files.		
<b>Razors—</b>		
Boras-1 C.		60%
Fox Razors, No. 42.	9 doz. \$30.00	} Dime
Fox Razors, No. 41.	9 doz. \$30.00	
Fox Razors, No. 82.	Platina 9 doz. \$25.00	
Red Devil.		50%
<b>Sage &amp; Hatch:</b>		
Arbo Anti-Rust.	9 doz.	\$10.00
Herbrand	9 doz.	\$6.00
Barber	9 doz.	\$6.00
<b>Silberstein:</b>		
Carbo Magnetic.		\$18.00
Griffon, No. 65.		\$15.00
Griffon, No. 60.		\$12.00
All other Razors.		40%
<b>Safety Razors—</b>		
Silberstein		40%
<b>Reels, Fishing—</b>		
<b>Hendryx:</b>		
M 6, Q 6, A 6, B 6, M 94, M 16,		
Q 16, A 16, B 16, 4008, Rubber		
Populo, Nickeled Populo.		20%
Aluminum, German Sil., Bronze.		25%
1240 N. 124 N.		25%
3004 N, 06 N, 8 RM G 9.		25%
4 N, 6 PN, 21 N, 26 PN.		20%
2904 P.		33½%
2904 PN.		33½%
Comptitor, 102 P, 102 PN.		33½%
0208 N.		33½%
0208 PN.		33½%
020304 PN.		33½%
802 N.		33½%
986 PN, 2904 N, 974 PN.		25%
5009 PN, 5009 N.		25%
Comptitor, 102 P, 102 PN, 202 P,		
202 PN, 102 PR, 202 PR.		30%
304 P, 304 PN, 0304 P, 0304 PN.		33½%
<b>Registers—List July 1, 1903.</b>		
Japanese, Electroplated and		
Bronzed		70 to 10%
Bronzed		75%
<b>Revolvers—</b>		
Single Action.		95¢ to \$1.00
Double Action, except 44 cal.		\$1.85
Double Action, 44 caliber.		\$2.00
Automatic		\$3.45
Hammerless		\$4.00
<i>NOTE.—Jobbers frequently cut the above prices of manufacturers for small trade.</i>		
<b>Riddles, Hardware Grade</b>		
16 in.	per doz.	\$2.25 to \$2.50
17 in.	per doz.	\$2.50 to \$2.75
18 in.	per doz.	\$2.75 to \$3.00
<b>Rings and Ringers—</b>		
<b>Bull Rings—</b>		
	2 2½ 3 inch.	
Steel	\$0.70 0.75 0.80 doz.	
Copper	1.00 1.15 1.40 doz.	
Rea's Improved Self-Piercing, Cop-		
per 2 in., 9 doz.	\$1.25; 2½ in.,	
\$1.50; 3 in., \$1.75.		
<b>Hog Rings and Ringers—</b>		
Hill's Rings, gro. boxes	\$4.00 to \$4.50	
Hill's Rings, Gray Iron		doz. 50¢ to 55¢
Hill's Rings, Malleable Iron		doz. 70¢ to 75¢
Blair's Rings	per gro.	\$4.75 to \$5.25
Blair's Rings	per doz.	\$0.60 to .65
Brown's Rings	per gro.	\$5.00 to .59
Brown's Rings	per doz.	\$0.60 to .61
<b>Rivets and Burrs—</b>		
Copper		.60 to 1.00 to 60%
Iron or Steel		75 to 75 to 65%
<b>Rollers—</b>		
Acme, Stowell's Anti-Friction		60%
Barn Door, Sargent's list		60%
Cronk's Stay No. 65, 90; No. 50		\$1.00
Cronk's Brinker No. 55, 60		\$0.60
No. 56		\$0.84
Lane's Stay		40%
Richards' Stay:		
Handy Adj. and Reversible No. 53.75		¢
O. K. Adj. and Reversible No. 58.50		¢
L. Screw, Nos. 55 and 57.		50%
Underbraker Nos. 59, 60		50%
Favorite, No. 54.		60%
Stowell's Barn Door Stay.	9 doz.	\$1.00
Swett's Anti-Friction.		50%
Screw and Spike Stay.	9 doz.	65¢
Hinge Adjustable Stay.	9 doz.	90¢
<b>Rope—</b>		
Manila, 7-16 in. diam. and larger:		
Pure	lb.	11½ to 12¢
Sisal, 7-16 in. diam. and larger:		
Mixed	lb.	8 to 8½¢
Pure	lb.	9 to 9½¢
Sisal, Hay, Hide and Bale		
Ropes, Medium and Coarse:		
Mixed	lb.	8 to 8½¢
Pure	lb.	9 to 9½¢
Sisal, Tarred, Medium Lath		
Yarn:		
Mixed	lb.	7½¢
Pure	lb.	8½¢
Cotton Rope, or reela:	lb.	
Best, ¼-in. and larger.	10½ to 18¢	
Medium, ¼-in. and larger.		15½ to 16½¢
Common, ¼-in. and larger.		10¢
In coils, 4-in. advance.		
<b>Jute Rope:</b>		
Thread No. 1, ¼ P. & up.	lb.	6½¢

Thread No. 2, 1/4-in. & up, 1b.5% Old Colony Manila Transmission Rope .....	17 1/2%
<b>Wire Rope—</b>	
Galvanized .....	42 1/2%
Plain .....	50 1/2%
<b>Ropes, Hammocks—</b>	
Covert Mfg. Co.: .....	50%
Jute .....	30 1/2%
Sisal .....	60 1/2%
Covert Saddlery Works .....	60 1/2%
<b>Rulers, Desk—</b>	
Stimpson & Son: .....	30 1/2%
Boxwood and Maple .....	30 1/2%
<b>Rules—</b>	
Boxwood .....	60 1/2%
Ivory .....	35 1/2%
Chapin-Stephens Co.: .....	35 1/2%
Boxwood .....	60 1/2%
Flexifold .....	27 1/2%
Ivory .....	35 1/2%
Miscellaneous .....	50 1/2%
Combination .....	10 1/2%
Stationers' .....	10 1/2%
<b>Keuffel &amp; Esser Co.: .....</b>	
Folding, Wood .....	35 1/2%
Folding, Steel .....	35 1/2%
Lufkin's Steel .....	60 1/2%
Lufkin's Lumber .....	60 1/2%
Stanley R. & L. Co.: .....	60 1/2%
Boxwood .....	60 1/2%
Ivory .....	45 1/2%
Miscellaneous .....	60 1/2%
Zig Zag .....	40 1/2%
Zig Zag, Pin Joint .....	42 1/2%
Upson Nut Co.: .....	60 1/2%
Boxwood .....	35 1/2%
Ivory .....	35 1/2%
<b>Sash Balances—</b>	
See Balance, Sash.	
<b>Sash Locks—</b>	
See Locks, Sash.	
<b>Sash Weights—</b>	
See Weights, Sash.	
<b>Sausage Stuffers or Fillers</b>	
See Stuffers or Fillers, Sausage.	
<b>Saw Frames—</b>	
See Frames, Saw.	
<b>Saw Sets—See Sets, Saw.</b>	
<b>Saw Tools—See Tools, Saw.</b>	
<b>Saws—</b>	
Atkins': .....	50%
Circular .....	50 1/2%
Band .....	50 1/2%
Cross Cuts .....	35 1/2%
Mulay, Mill and Drag .....	50 1/2%
One-Man Saw .....	40 1/2%
Wood Saws .....	40 1/2%
Hand, Compass, &c. .....	30 1/2%
Chapin-Stephens Co.: .....	30 1/2%
Turning Saws and Frames .....	30 1/2%
Diamond Saw & Stamping Works: .....	30 1/2%
Sterling Kitchen Saws: .....	30 1/2%
Disston's: .....	50%
Circular, Solid and Ins'ted Tooth .....	50 1/2%
Band, 2 to 14 in. wide .....	60 1/2%
Band, 1/4 to 1 1/2 in. .....	60 1/2%
Crosscuts .....	50 1/2%
Narrow Crosscuts .....	50 1/2%
Mulay, Mill and Drag .....	50 1/2%
Framed Woodsaws .....	35 1/2%
Woodsaw Blades .....	35 1/2%
Wood Saw Holes .....	35 1/2%
Hand Saws, Nos. 12, 9, 9, 16, 100, .....	25 1/2%
18, 120, 76, 77, 8 .....	25 1/2%
Hand Saws, Nos. 7, 107, 107 1/2, 3, 1, .....	30 1/2%
0, 0, Combination .....	30 1/2%
Compass, Key Hole, &c. .....	35 1/2%
Butcher Saws and Blades .....	35 1/2%
C. E. Jennings & Co.'s: .....	35 1/2%
Back Saws .....	35 1/2%
Butcher Saws .....	35 1/2%
Compass and Key Hole Saws .....	35 1/2%
Framed Wood Saws .....	35 1/2%
Hand Saws .....	35 1/2%
Wood Saw Blades .....	35 1/2%
Millers Falls: .....	15 1/2%
Butcher Saws .....	15 1/2%
Star Saw Blades .....	15 1/2%
Peace & Richardson's Hand Saws .....	30 1/2%
Simonds': .....	50%
Circular Saws .....	50 1/2%
Crescent Ground Cross Cut Saws .....	35 1/2%
One-Man Cross Cuts .....	40 1/2%
Gang Mill, Mulay and Drag Saws .....	50 1/2%
Band Saws .....	50 1/2%
Back Saws .....	50 1/2%
Butcher Saws .....	50 1/2%
Hand Saws .....	50 1/2%
Hand Saws, Bay State Brand .....	40 1/2%
Compass, Key Hole, &c. .....	35 1/2%
Wood Saws .....	35 1/2%
Springfield Mach. & Sec. Co.: .....	40 1/2%
Diamond Hack Saw Blades .....	40 1/2%
Butcher Saws and Blades .....	35 1/2%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws .....	50 1/2%
<b>Hack Saws—</b>	
Atkins' Hack Saw Blades A A A .....	25 1/2%
Disston's: .....	50%
Concave Blades .....	25 1/2%
Keystone .....	40 1/2%
Hack Saw Frames .....	30 1/2%
Fitchburg File Works, The Best .....	35 1/2%
C. E. Jennings & Co.'s: .....	35 1/2%
Hack Saw Frames, Nos. 175, 180, .....	40 1/2%
Hack Saws, Nos. 175, 180, complete, .....	40 1/2%
Goodell's Hack Saw Blades .....	40 1/2%
Griffin's Hack Saw Frames .....	35 1/2%
Griffin's Hack Saw Blades .....	35 1/2%
Springfield Mach. & Sec. Co.: .....	35 1/2%
Diamond Hack Saw Frames .....	50 1/2%
Star Hack Saws and Blades .....	15 1/2%
Sterling Hack Saw Blades .....	30 1/2%
Sterling Hack Saw Frames .....	30 1/2%
Sterling Power Hack Saw Machines, .....	10 1/2%
each, No. 1, \$25.00; No. 2, \$30.00.	
<b>Scroll—</b>	
Barnes' Scroll Saw Blades .....	25 1/2%
Barnes' Velocipede Power Scroll Saw, .....	40 1/2%
without boring attachment, \$18; .....	
with boring attachment, \$20. .....	25 1/2%
Lester, complete, \$10.00. .....	15 1/2%
Rogers, complete, \$4.00. .....	15 1/2%
<b>Scalers, Fish—</b>	
Covert's Saddlery Works .....	60 1/2%
<b>Scales—</b>	
Family, Turnbull's .....	50 1/2%

<b>Counter:</b>	
Hatch, Platform, 1/2 oz. to 4 lbs. ....	50 1/2%
Two Platforms, 1/2 oz. to 8 lbs. ....	16 1/2%
Union Platform, Plain \$1.70 @ 1.90	
Union Platform, Stpd. \$1.85 @ 2.15	
<b>Chattillon's:</b>	
Eureka .....	25 1/2%
Favorite .....	40 1/2%
Crocker's Trip Scales .....	50 1/2%
Chicago Scale Co.: .....	50 1/2%
The "Little Detective" .....	25 1/2%
Union or Family No. 2 .....	50 1/2%
Portable Platform (reduced list) .....	50 1/2%
Wagon or Stock (reduced list) .....	25 1/2%
"The Standard" Portables .....	50 1/2%
"The Standard" R. R. and Wagon .....	50 1/2%
<b>Scrapers—</b>	
Box, 1 Handle .....	22 1/2%
Box, 2 Handle .....	22 1/2%
Ship .....	22 1/2%
Adjustable Box Scraper (S. R. & L. Co.), \$6.00. ....	45 1/2%
Chapin-Stephens Co., Box .....	30 1/2%
<b>Screens, Window and Frames—</b>	
Air Line Pattern Screens .....	60 1/2%
Flyer Pattern Screens .....	60 1/2%
Maine Screen Frames .....	40 1/2%
Perfection Screens .....	60 1/2%
Phillips' Screen Frames .....	60 1/2%
See also Doors.	
<b>Screws—Bench and Hand</b>	
Bench, Iron, doz., 1 in., \$2.50 @ 2.75; 1 1/4, \$3.00 @ 3.25; 1 1/2, \$3.50 @ 3.75	
Bench, W'd, Beech, doz. 30 @ 30 1/2%	
Hand, Wood .....	30 1/2%
R. Biss Mfg. Co., Hand .....	30 1/2%
Chapin-Stephens Co., Hand .....	30 1/2%
Ohio Tool Co., Bench and Hand .....	30 1/2%
<b>Coach, Lag and Hand Rail—</b>	
Lag, Cone Point, list Oct. 1, '99 .....	75 1/2%
Coach, Gimlet Point, list Oct. 1, '99 .....	75 1/2%
Hand Rail, list Jan. 1, '81 .....	70 1/2%
<b>Jack Screws—</b>	
Standard List .....	75 1/2%
Millers Falls .....	50 1/2%
Millers Falls, Roller .....	50 1/2%
P. S. & W. .....	50 1/2%
Sargent .....	70 1/2%
Swett Iron Works .....	75 1/2%
<b>Machine—</b>	
List Jan. 1, '98:	
Flat or Round Head, Iron .....	50 1/2%
Flat or Round Head, Brass .....	50 1/2%
<b>Set and Cap—</b>	
Set (Iron) .....	80 1/2%
Set (Steel), net advance over Iron .....	25 1/2%
Sq. Hd. Cap .....	75 1/2%
Hex. Hd. Cap .....	75 1/2%
Rd. Hd. Cap .....	60 1/2%
Fillister Hd. Cap .....	60 1/2%
<b>Wood—</b>	
List July 23, 1903:	
Flat Head, Iron .....	87 1/2%
Round Head, Iron .....	85 1/2%
Flat Head, Brass .....	85 1/2%
Round Head, Brass .....	85 1/2%
Flat Head, Bronze .....	77 1/2%
Round Head, Bronze .....	75 1/2%
Drive Screws .....	87 1/2%
<b>Scroll Saws—</b>	
See Saws, Scroll.	
<b>Scythes—</b>	
Prices announced for next season:	
Clipper Pattern, Grass .....	\$6.20
Full Polished, Clipper .....	\$6.75
Grain .....	\$6.00
Clipper, Grain .....	\$6.25
Weed and Bush .....	\$6.25
<b>Seeders, Raisin—</b>	
Enterprise .....	25 1/2%
<b>Sets—Awl and Tool—</b>	
Aiken's Sets, Awl and Tools: .....	60 1/2%
No. 20, doz. \$10.00. ....	
Fray's Adj. Tool Handles, Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$9; 5, \$7. ....	50 1/2%
C. E. Jennings & Co.'s Model Tool Holders .....	30 1/2%
Millers Falls Adj. Tool Handles, No. 1, \$12; No. 4, \$12; No. 5, \$18. ....	15 1/2%
<b>Tool Sets—</b>	
Ft. Madison Three Flows, Hoe, Rake and Shovel .....	40 1/2%
<b>Sets, Nail—</b>	
Octagon .....	30 1/2%
Buck Bros. .....	25 1/2%
Cannon's Diamond Point .....	12 1/2%
Mayhew's .....	30 1/2%
Snell's Corrugated, Cup Pt. .....	30 1/2%
Snell's Knurled, Cup Pt. .....	30 1/2%
Springfield Mach. Screw Co.: .....	30 1/2%
Diamond Knurled Cup Pt. .....	30 1/2%
<b>Rivet—</b>	
Regular list .....	75 1/2%
<b>Saw—</b>	
Aiken's: .....	50 1/2%
Genuine .....	50 1/2%
Imitation .....	50 1/2%
Atkins': .....	40 1/2%
Crutcher .....	40 1/2%
Bemis & Call Co.'s: .....	40 1/2%
Cross Cut .....	30 1/2%
Plate .....	20 1/2%
Disston's Star and Monarch .....	25 1/2%
Morrill's No. 1, \$15.00. ....	50 1/2%
Nos. 3 and 4, Cross Cut, \$20.00. ....	50 1/2%
No. 5, Mill, \$30.00. ....	50 1/2%
Nos. 10, 11, 95, \$15.00. ....	50 1/2%
No. 1 Old Style, \$10.00. ....	50 1/2%
Special, \$16.25. ....	50 1/2%
Giant Royal Cross Cut .....	30 1/2%
Royal, Hand .....	30 1/2%
Taintor Positive .....	30 1/2%
<b>Shaving—</b>	
Fox Shaving Sets, No. 30 .....	30 1/2%
doz., net, \$24.00 .....	60 1/2%
Smith & Hemenway Co.'s .....	60 1/2%

<b>Sharpeners, Knife—</b>	
Chicago Wheel & Mfg. Co. ....	70 1/2%
Pike Mfg. Co.: .....	70 1/2%
Past Cut Pocket Knife Hones, .....	\$1.50
Mounted Kitchen Sand Stone, .....	\$1.50
doz. ....	\$1.50
Natural Grit Carving Knife .....	\$3.00
Hones, doz. ....	\$3.00
Quick Cut Emery Carving .....	\$1.50
Knife Hones, doz. ....	\$1.50
Quick Edge Pocket Knife .....	\$2.50
Hones, doz. ....	\$2.50
<b>Skate—</b>	
Smith & Hemenway Co. ....	20 1/2%
<b>Shaves, Spoke—</b>	
Iron .....	1.10 @ 1.25
Wood .....	1.15 @ 1.25
Bailey's (Stanley R. & L. Co.) .....	45 1/2%
Razor Edge (Stanley R. & L. Co.) .....	35 1/2%
Chapin-Stephens Co. ....	30 1/2%
Goodell's, doz. \$9.00. ....	15 1/2%
Wood's F1 and F2 .....	50 1/2%
<b>Shears—</b>	
Cast Iron .....	7 1/2 in.
Best .....	16.00 18.00 20.00 gro.
Good .....	13.00 15.00 17.00 gro.
Cheap .....	5.00 6.00 7.00 gro.
<b>Straight Trimmers, &amp;c.—</b>	
Best quality Jap. ....	70 1/2%
Best quality, Nickel .....	60 1/2%
Fair quality, Jap. ....	80 1/2%
Fair quality, Nickel .....	75 1/2%
Tailors' Shears .....	40 1/2%
Acme Cast Shears .....	40 1/2%
Hornish's Tailor's Shears .....	10 1/2%
Wilkinson's Sheep, 1900 list .....	50 1/2%
<b>Tinners' Snips—</b>	
Steel Blades .....	20 1/2%
Steel Laid Blades .....	40 1/2%
Forged Handles, Steel Blades, Berlin .....	50 1/2%
Heinrich's Snips .....	50 1/2%
Jennings & Griffin Mfg. Co.'s, 6 1/2 to 10 in. ....	50 1/2%
Niagara Snips .....	40 1/2%
P. S. & W. Forged Handles .....	20 1/2%
<b>Pruning Shears—</b>	
Cronk's Hand Shears .....	33 1/2%
Cronk's Wood Handle Shears .....	33 1/2%
Disston's Combined Pruning Hook and Saw, doz. \$18.00. ....	25 1/2%
Disston's Pruning Hook, doz. \$12.00. ....	25 1/2%
John T. Henry Mfg. Co.: .....	25 1/2%
Pruning Shears, all grades .....	50 1/2%
P. S. & W. ....	50 1/2%
Wilkinson's Hedge, 1900 list .....	50 1/2%
Wilkinson's Lawn and Border .....	50 1/2%
<b>Sheaves—Sliding Door—</b>	
Stowell's Anti-Friction .....	50 1/2%
Patent Roller, Hatfield's, Sargent .....	40 1/2%
Reading list .....	40 1/2%
R. & E. list .....	33 1/2%
Sargent's list .....	10 1/2%
<b>Shells—Shells, Empty—</b>	
Brass Shells, Empty: .....	
Climax, Club, Rival, 10 and 12 gauge .....	65 1/2%
Paper Shells, Empty: .....	
Acme, Ideal, Leader, New Rapid, Hagie, 10, 12, 16 and 20 gauge .....	25 1/2%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge .....	20 1/2%
Climax, Union, League, New Rival, 10, 12, 16 and 20 gauge .....	25 1/2%
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge .....	33 1/2%
Robin Hood, Low Brass .....	20 1/2%
Robin Hood, High Brass .....	30 1/2%
<b>Shells, Loaded—</b>	
Loaded with Black Powder .....	40 1/2%
Loaded with Smokeless Powder, medium grade .....	40 1/2%
Loaded with Smokeless Powder, high grade .....	40 1/2%
Robin Hood Smokeless Powder: .....	
Robin Hood, Low Brass .....	50 1/2%
Comets, High Brass .....	50 1/2%
<b>Shoes, Horse, Mule, &amp;c.—</b>	
F. O. B. Pittsburgh: .....	
Iron .....	per keg \$4.00
Steel .....	per keg \$3.75
Burdens', all sizes .....	per keg \$3.90
<b>Shot—</b>	
Drop, up to B, 25-lb. bag .....	\$1.70
Drop, B and larger .....	per 25-lb. bag, \$1.95
Buck, 25-lb. bag .....	\$1.95
Chilled, 25-lb. bag .....	\$1.95
<b>Shovels and Spades—</b>	
Association List, Nov. 15, 1902. ....	40 1/2%
<b>Sieves and Sifters—</b>	
Hunter's Imitation .....	gro. \$10.50 @ 11.00
Hunter's Genuine .....	per gro. \$12.00 @ 12.50
Buffalo Metallic Blued, S. S. Co., 30 in. ....	14 1/2
14 1/2 .....	16 1/2
16 1/2 .....	18 1/2
Shaker (Barler's Pat.) Flour Sifters .....	\$13.50
Sieve, \$2.00. ....	20 1/2%
<b>Sieves, Seamless Metallic</b>	
Mesh .....	14 16 18 20
Iron Wire .....	\$1.05 1.05 1.10 1.20
Tinned Wire .....	\$1.15 1.15 1.20 1.30
<b>Sieves, Wooden Rim—</b>	
Nested, 10, 11 and 12 Inch .....	
Mesh 18, Nested .....	doz. \$9.90 @ 9.95
Mesh 20, Nested .....	doz. \$1.00 @ 1.05
Mesh 21, Nested .....	doz. \$1.80 @ 1.40
<b>Sinks, Cast Iron—</b>	
Standard list .....	60 1/2%
Barnes' low list .....	60 1/2%
<b>NOTE—There is not entire uniformity in lists used by jobbers.</b>	

<b>Skains, Wagon—</b>	
Cast Iron .....	80 1/2%
Steel .....	40 1/2%
<b>Slates, School—</b>	
Factory Shipments .....	50 1/2%
"D" Slates .....	50 1/2%
Eureka, Unexcelled Noiseless .....	60 1/2%
Victor A, Noiseless .....	60 1/2%
<b>Slaw Cutters—See Cutters.</b>	
<b>Snaps, Harness—</b>	
German .....	40 1/2%
Covert Mfg. Co.: .....	30 1/2%
Derby .....	30 1/2%
High Grade .....	30 1/2%
Jockey .....	30 1/2%
Trojan .....	30 1/2%
Yankee .....	30 1/2%
Yankee Roller .....	30 1/2%
Covert's Saddlery Works: .....	
Crown .....	60 1/2%
German .....	60 1/2%
Model .....	60 1/2%
Triumph .....	60 1/2%
Oneda Community .....	60 1/2%
Harness Snaps, 1 inch .....	60 1/2%
Swivel Snaps .....	60 1/2%
Swivels .....	

Washta Slips, No. 2.....	40¢
India Oil Stones (entire list).....	33 1/2%
Quickcut Emery and Corundum Oil	
Stone, Double Grit.....	33 1/2%
Quickcut Emery and Corundum Axe	
Stone, Double Grit.....	33 1/2%
Quickcut Emery Rubbing Bricks.....	33 1/2%
Hindustan No. 1, R. g. lar. 1/2 lb. 8¢	
Hindustan No. 1, Small, 1/2 lb. 10¢	
Axe Stones (all kinds).....	25¢
Turkey Oil Stones, Extra, 5 to	
8 in. ....	10¢
Queer Creek Stones, 4 to 5 in. 20¢	
Queer Creek Slips.....	40¢
Sand Stone.....	40¢

#### Scythe Stones—

Chicago Wheel & Mfg. Co.,	
Gem Corundum, 10 in., \$2.00	
gro., 12 in., \$3.00	
Norion Emery Scythe Stones:	
Less than gross lots.....	gro. \$9.00
One gross or more.....	gro. \$7.20
Lots of 10 gross or more.....	gro. \$6.00
Pike Mfg. Co., 1901 list:	
Black Diamond S. S., 1/2 lb. \$12.00	
Lamolle S. S., 1/2 lb. \$11.00	
White Mountain S. S., 1/2 lb. \$9.00	
Green Mountain S. S., 1/2 lb. \$6.00	
Extra Indian Pond S. S., 1/2 lb. \$7.50	
No. 1 Indian Pond S. S., 1/2 lb. \$7.00	
No. 2 Indian Pond S. S., 1/2 lb. \$5.00	
Leader Red End S. S., 1/2 lb. \$4.50	
Quick Cut Emery.....	gro. \$10.00
Pure Corundum.....	gro. \$18.00
Crescent.....	gro. \$7.00
Emery Scythe Rifles, 2 Coat \$8	
Emery Scythe Rifles, 3 Coat, \$10	
Emery Scythe Rifles, 4 Coat, \$12	
Balance of 1904 list 33 1/2%	

#### Stoppers, Bottle—

Victor Bottle Stoppers.....	gro. \$9.00
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#### Stops—Bench—

Millers Falls.....	15¢ 10%
Morrill's, 1/2 doz., No. 1, \$10.00	
Morrill's, 1/2 doz., No. 2, \$12.50	

#### Door—

Chapin-Stephens.....	60¢ 60¢ 10%
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#### Plane—

Chapin-Stephens.....	20%
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#### Straps—Box—

Cary's Universal case lots.....	20¢ 10¢ 10%
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#### Hame—

Corert's Saddlery Works.....	60¢ 10%
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#### Stretchers, Carpet—

Cast Iron, Steel Points, doz.	60¢ 60¢ 10%
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#### Socket—

Excelsior Stretcher and Tack Hammer Combined	1/2 doz. \$6.00
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#### Stuffers, Sausage—

Enterprise Mfg. Co., 1902	25¢ 25¢ 1/4%
National Specialty Co., list Jan. 1902	30¢ 45%

#### Sweepers, Carpet—

National Sweeper Co.:	
Louis XV, Roller Bearing, Gold	1/2 doz. \$120.00
Hepplewhite, Roller Bearing, Silver Plated.....	\$72.00
Sheraton, Roller Bearing, N'kel \$60.00	
Ye Mission, Roller Bearing, Oxidized Copper.....	\$36.00
Transparent, Roller Bearing, Plate Glass top, Nickel.....	\$36.00
National Queen, Roller Bearing, Fancy Veneers.....	\$42.00
Loyal, Roller Bearing, Veneers.....	\$25.00
Nickel.....	\$25.00
Triple Medal, Roller Bearing, Nickel.....	\$24.00
Marion, Roller Bearing, N'kel \$24.00	
Marion Queen, Roller Bearing, Nickel.....	\$24.00
Monarch, Roller Bearing, N'kel \$22.00	
Monarch, Roller Bearing, Jap. \$20.00	
Perpetual, Regular B'rs, Jap. \$18.00	
Monarch Extra (17 in. case), Roller Bearing, Nickel.....	\$36.00
Auditorium (26 in. case), Roller Bearing, Nickel.....	\$54.00
Mammoth (30 in. case), Roller Bearing, Nickel.....	\$60.00

NOTE.—Rebates: 50¢ per dozen on three dozen lots; \$1 per dozen on five dozen lots; \$2 per dozen on ten dozen lots; \$2.50 per dozen on twenty-five dozen lots.

#### Tacks, Finishing Nails, &c.

New List, May 1, 1905.

American Carpet Tacks.....	90¢ 37 1/2%
American Cut Tacks.....	90¢ 37 1/2%
Suedes Cut Tacks.....	90¢ 37 1/2%
Suedes Upholsterers' Tacks.....	90¢ 37 1/2%
Gimp Tacks.....	90¢ 45%
Lace Tacks.....	90¢ 45%
Trimmers' Tacks.....	90¢ 37 1/2%
Looking Glass Tacks.....	65%
Bill Posters' and Railroad Tacks.....	90¢ 45%
Hungarian Nails.....	85%
Finishing Nails.....	70%
Trunk and Clout Nails.....	80¢ 45%

NOTE.—The above prices are for Standard Weights. An extra 3% is given on Medium Weights, and an extra 10% is given on light weights.

#### Miscellaneous—

Double Pointed Tacks.....	90¢ 6¢ 7¢ 10%
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Steel Wire Brads, R. & E. Mfg. Co., list	See also Nails Wire
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#### Tanks, Oil—

Emerald, S. S. & Co.....	30-gal. \$3.40
Emerald, S. S. & Co.....	60-gal. \$4.25
Queen City, S. S. & Co.....	30-gal. \$3.65
Queen City, S. S. & Co.....	60-gal. \$4.50

#### Tapes, Measuring—

American Asses' Skin.....	50¢ 50¢ 10%
Patent Leather.....	25¢ 30¢ 45%
Steel.....	40¢ 10¢ 10%
Chesterman's.....	25¢ 25¢ 45%
Eddy Asses' Skin.....	40¢ 10¢ 10%
Eddy Patent Leather.....	25¢ 30¢ 45%
Eddy Steel.....	40¢ 10¢ 10%

Keuffel & Esser Co.:	
Favorite, Ass Skin.....	40¢ 10¢ 50%
Favorite, Duck and Leather.....	25¢ 45¢ 10%
Metallic and Steel, lower list.....	35¢ 35¢ 45%
Pocket.....	35¢ 35¢ 45%
Luffin's.....	40¢ 10¢ 50%
Asses' Skin.....	30¢ 30¢ 45%
Metallic.....	30¢ 30¢ 45%
Patent Bend, Leather.....	25¢ 45¢ 10%
Pocket.....	40¢ 40¢ 45%
Steel.....	35¢ 35¢ 45%

Teeth, Harrow—	
Steel Harrow Teeth, plain or headed, 1/2-inch and larger.....	per 100 lbs. \$3.00

Thermometers—	
Tin Case.....	80¢ 10¢ 80¢ 10¢ 45%

Ties, Bale—Steel Wire—	
Single Loop.....	80¢ 2 1/2%

Monitor, Cross Head, &c.....	70%
Brick Ties—	
Niagara Brick Ties.....	25¢ 10%

Tinners' Shears, &c.—	
See Shears, Tinners', &c.	

Tinware—	
Stamped, Japanned and Pieced, sold very generally at net prices.	

Tips, Safety Pole—	
Corert's Saddlery Works.....	60¢ 10%

Tire Benders, Upsetters, &c.—	
See Benders and Upsetters, Tire.	

Tools—Coopers—	
L. & I. J. White.....	20¢ 20¢ 45%

Hay—	
Myers' Hay Tools.....	50%
Stowell's Hay Carriers.....	50%
Stowell's Hay Forks.....	50%
Stowell's Fork Pulleys.....	50%

Miniature—	
Smith & Hemenway Co.'s.....	25%

Saw—	
Atkins' Cross Cut Saw Tools.....	40%
Simonds' Improved.....	33 1/2%
Simonds' Crescent.....	25%

Ship—	
L. & I. J. White.....	25%

Transom Lifters—	
See Lifters, Transom.	

Traps—Fly—	
Balloon, Globe or Acme, doz.	\$1.15¢ 1.25¢; gro. \$11.50¢ 12.00
Harper, Champion or Paragon, doz.	\$1.25¢ 1.40¢; gro. \$13.00¢ 13.50

Game—	
Oneida Pattern.....	75¢ 10¢ 75¢ 10¢ 45%
Newhouse.....	45¢ 45¢ 45%
Hawley & Norton.....	65%
Victor.....	70¢ 10%
Oneida Community Jump.....	50%

Mouse and Rat—	
Mouse, Wood, Choker, doz. holes	8 1/4¢ 9¢

Mouse, Round or Square Wire.	doz. 85¢ 90¢
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Marty French Rat and Mouse Traps (Genuine):	
No. 1, Rat, each \$1.21; 1/2 doz. \$13.25	
No. 3, Rat, 1/2 doz. \$5.25; case of 50	\$5.75 doz.
No. 3 1/2, Rat, 1/2 doz. \$5.25; case of 50	\$5.75 doz.
No. 4, Mouse, 1/2 doz. \$3.85; case of 50	\$3.90 doz.
No. 5, Mouse, 1/2 doz. \$3.90; case of 50	\$3.90 doz.

Trimmers, Spoke—	
Wood's E.....	50%

Trowels—	
Diston Brick and Pointing.....	20%
Diston Plastering.....	20%
Diston "Standard Brand" and Gardner Trowels.....	35%
Kohler's Steel Garden Trowels, 5 in. 1/2	gro. \$1.80
Kohler's Steel Garden Trowels, 6 in. 1/2	gro. \$2.00
Never-Break Steel Garden Trowels.....	35%
Rose Brick and Plastering.....	25¢ 45%
Woodrough & McFarlin, Plastering.....	25%

Trucks, Warehouse, &c.—	
B. & L. Block Co.:	
New York Pattern.....	50¢ 10%
Western Pattern.....	60¢ 10%
Handy Trucks.....	1/2 doz. \$16.00
Grocery.....	1/2 doz. \$15.00
Daisy Store Trucks, Improved Pattern.....	1/2 doz. \$18.50
McKinney Truck.....	each \$10.00
Model Store Trucks.....	1/2 doz. \$18.50

Tubs, Wash—No. 1 2 3	
Galvanized, per doz. \$4.25 4.75 5.25	
Galvanized Wash Tubs (S. & Co.):	
No. 1.....	2 1/2 3 4 5 6 7 8 9
Per doz., net.....	\$3.70 4.20 4.70 5.20 5.70 6.20 6.70 7.20 7.70

Twine, Miscellaneous—	
Flax Twine: BC. B.	
No. 9, 1/4 and 1/2-lb. Balls.....	22¢ 24¢
No. 12, 1/4 and 1/2-lb. Balls.....	18¢ 20¢
No. 18, 1/4 and 1/2-lb. Balls.....	16¢ 18¢
No. 24, 1/4 and 1/2-lb. Balls.....	16¢ 18¢
No. 30, 1/4 and 1/2-lb. Balls.....	15¢ 17¢
Chalk Line, Cotton 1/4-lb. Balls	25¢ 30¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....	10¢ 12¢ 18¢
Cotton Wrapping, 5 Balls to lb., according to quality.....	1 1/4¢ 20¢
American 2-Ply Hemp, 1/4 and 1/2-lb. Balls.....	13¢ 14¢
American 3-Ply Hemp, 1-lb. Balls.....	13¢ 14¢
India 2-Ply Hemp, 1/4 and 1/2-lb. Balls (Spring Twine).....	9 1/2¢
India 3-Ply Hemp, 1-lb. Balls.....	9 1/2¢
India 3-Ply Hemp, 1 1/2-lb. Balls.....	7 1/2¢
2, 3, 4 and 5-Ply Jute, 1/4-lb. Balls.....	9¢ 10¢
Mason Lime, Lincen, 1/2-lb. Bls. 14¢	
No. 204 Mattress, 1/4 and 1/2-lb. Balls.....	37¢
Wool, 3 to 6 ply.....	B 5 1/2¢; A 6¢

Vises—	
Solid Box.....	60¢ 10¢ 60¢ 10¢ 10%
Parallel—	
Athol Machine Co.:	
Simpson's Adjustable.....	40%
Standard.....	40%
Amateur.....	40%
Columbian Hdw. Co.....	40%
Emmert Universal:	
Pattern Makers' No. 1, \$15.00; No. 2, \$12.50.	
Machinist and Tool Makers' No. 1A, \$12.50; No. 5A, \$7.00; No. 6A, \$10.00; No. 10A, \$22.50.	
Presto Quick Acting.....	25¢ 25¢ 45%
Tiger Machinists.....	40%
Fisher & Norris Double Screw.....	15¢ 10%
Holland's:	
Machinists'.....	40¢ 40¢ 45%
Keystone.....	65¢ 65¢ 70%
Lewis Tool Co.:	
Adjustable Jaw.....	30%
Monarch.....	50%
Solid Jaw.....	50%
Merrill's.....	50%
Millers Falls.....	60¢ 10%
Massey Vise Co.:	
Clinch.....	40%
Perfect.....	40%
Lightning Grip.....	20%
Parker's:	
Victor.....	20¢ 25%
Regulars.....	20¢ 25%
Vulcan's.....	40¢ 40%
Combination Pipe.....	55¢ 60%
Prentiss.....	20¢ 25%
Sargent's.....	40%
Snediker's X. L.....	33 1/2%
Stephens.....	33 1/2%
Williamson Mfg Co. Double Swivel.....	40¢ 45%

Saw Filers—	
Diston's D 3 Clamp and Guide, 1/2 doz. \$3.00	
Perfection Saw Clamps, 1/2 doz.....	\$4.50
Reading & Gordon's Quick Action, 1/2 doz.....	1.00
Wentworth's Rubber Jaw, Nos. 1 and 3.....	45¢ 50%

Wood Workers—	
Massey Vise Co.:	
Lightning Grip.....	15%
Perfect.....	15%
Wyman & Gordon's Quick Action, 6 in., \$6.00; 9 in., \$7.00; 14 in., \$8.00.	

Miscellaneous—	
Bigall & Keeler Combination Pipe Vise.....	60¢ 10%
Holland's Combination Pipe.....	60¢ 60¢ 45%
Massey's Quick Action Pipe.....	40%
Parlan & Combination Pipe.....	60%
37 Series.....	60%
187 Series.....	60%
No. 870.....	40%
Williamson Mfg Co. Double Swivel Combination Pipe.....	40¢ 45%

Wads—Price per M.	
B. E., 11 up.....	60¢
B. E., 9 and 10.....	70¢
B. E., 8.....	80¢
B. E., 7.....	80¢
P. E., 11 up.....	\$1.00
P. E., 9 and 10.....	1.25
P. E., 8.....	1.50
P. E., 7.....	1.50
Ely's B. E., 11 and larger.....	\$1.70¢ 1.75
Ely's P. E., 12 to 20.....	\$3.00¢ 3.25

Ware, Hollow—	
Cast Iron, Hollow—	
Stove Hollow Ware:	
Enameled.....	55%
Ground.....	60%
Plain or Unground.....	65%
Country Hollow Ware, per 100 lbs.....	\$2.75
White Enameled Ware:	
Maslin Kettles.....	70%
Covered Wares.....	70%
Tinned and Turned.....	40%
Enameled.....	50%
See also Pots, Gluc.	

Enameled—	
Agate Nickel Steel Ware.....	60%
Iron Clad Ware.....	70¢ 10%
Lava, Enameled.....	40¢ 10%
Never Break Enameled.....	50%

Tea Kettles—	
Galvanized Tea Kettles:	
Inch.....	6 7 8 9
Each.....	15¢ 50¢ 55¢ 65¢

Steel Hollow Ware—	
Avery Spiders and Griddles.....	65¢ 65¢ 45%
Avery Kettles.....	55¢ 50¢ 10%
Porcelain.....	55¢ 50¢ 10%
Never Break Spiders and Griddles.....	65¢ 45%
Never Break Kettles.....	60%
Solid Steel Spiders and Griddles.....	65¢ 45%
Solid Steel Kettles.....	60%

Warmers, Foot—	
Pike Mfg. Co., Soapstone.....	40¢ 40¢ 10%

Washboards—	
Solid Zinc:	
Crescent, family size, bent frame.....	\$3.25
Ried Star, family size, stationary protector.....	\$3.25
Double Zinc Surface:	
Saginaw Globe, family size, stationary protector.....	\$2.90
Cable Cross, family size, stationary protector.....	\$3.15
Single Zinc Surface:	
Naiad, family size, open back, perforated.....	\$2.65
Saginaw Globe, protector, family size, ventilated back.....	\$2.50
Brass King, Single Surface, open back.....	\$3.25
Nickel Plate Surface:	
No. 1001 Nickel Plate, Single Surface.....	\$3.25
Glass Surface:	
Back King, Single Surface, open back.....	\$3.25
Enamel Surface:	
Enamel King, Single Surface, ventilated back.....	\$3.25

Washers—Leather, Axle—	
Solid.....	80¢ 10¢ 80¢ 10¢ 10%
Patent.....	90¢ 90¢ 45%
Colli.....	1 1/4 1 1/4 1 1/4 1 1/4
10¢ 11¢ 11¢ 13¢ per doz	

Iron or Steel—	
Size bolt.....	5-16 3/4 1/2 5/8 3/4